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BEFORE THE WATER POLLUTION CONTROL
ADVISORY COUNCIL (WPCAC)

TRANSCRIPT OF PROCEEDINGS

Heard at Room 111, Metcalf Building
1520 East Sixth Avenue
Helena, Montana
April 14, 2010
10:00 a.m.

CHAIRMAN DUDE TYLER; MEMBERS
TREVOR SELCH, EARL SALLEY, MITCHELL LIEU,
RICHARD HOEHNE, ROGER MUGGLI, STEVIE
NEUMAN, KAREN BUCKIN SANCHEZ; and
CORY FISHER and MICHAEL WENDLAND

(By telephone)

PREPARED BY: LAURIE CRUTCHER, RPR

COURT REPORTER, NOTARY PUBLIC

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1 WHEREUPON, the following proceedings were
2 had and testimony taken, to-wit:

3 * * * * *

4 (Mr. Wendland and Mr. Salley
5 not present)

6 CHAIRMAN TYLER: Call this meeting to
7 order. Good morning, everybody. I wonder if we
8 would be well served by going around ourselves
9 because we have several members in the audience
10 who may be curious. I'm Dude Tyler. I'll be the
11 Chair today, from Livingston. Bob Bukantis is our
12 point man here. Shall we go around.

13 MR. SELCH: Trevor Selch, fisheries
14 pollution biologist with Fish, Wildlife and Parks.

15 MS. BUCKIN-SANCHEZ: Karen Sanchez. I
16 represent professional engineers on this
17 committee.

18 MS. NEUMAN: Stevie Neuman, representing
19 the conservation districts.

20 MR. MUGGLI: Roger Muggli, representing
21 irrigation. I manage the Tongue and Yellowstone
22 Irrigation, Muggli Brothers Farm and Feed Plant
23 Operation.

24 MR. HOEHNE: Richard Hoehne, represent
25 public works. I'm with the town of Philipsburg.

1 MR. LIEU: Mitch Lieu. I'm representing
2 industry discharging organic materials, I believe.
3 Specifically I work for Plum Creek Timber Company.
4 CHAIRMAN TYLER: Just for our shop
5 keeping here, since we do have a Court Reporter
6 today, Laurie will be taking notes. It would be
7 very handy if all of us could state our name
8 before we raise a point or anything, just for the
9 logistics here. Who do we have on the phone?
10 MR. FISHER: This is Cory Fisher from
11 Missoula, and I'm representing conservation
12 organization.
13 CHAIRMAN TYLER: Good morning, Cory.
14 Anybody else?
15 (No response)
16 MR. BUKANTIS: Earl is going to show up.
17 He's going to be a little bit late.
18 CHAIRMAN TYLER: So Earl Salley will be
19 here.
20 MR. BUKANTIS: He estimated about half
21 an hour late.
22 CHAIRMAN TYLER: Well, we do have a
23 quorum. Is there any change to the agenda as
24 written? If not, motion to approve the agenda.
25 MR. LIEU: So moved.

1 CHAIRMAN TYLER: Second?

2 MR. SELCH: Second.

3 CHAIRMAN TYLER: Voice vote, all in
4 favor.

5 (Response)

6 CHAIRMAN TYLER: Opposed.

7 (No response)

8 CHAIRMAN TYLER: Motion carries. Any
9 changes to the minutes from the January 5th
10 Council meeting?

11 (No response)

12 CHAIRMAN TYLER: Motion to approve?

13 MS. BUCKIN-SANCHEZ: Karen. Motion to
14 approve.

15 CHAIRMAN TYLER: And second?

16 MR. SELCH: Trevor. Second.

17 CHAIRMAN TYLER: Thank you. All in
18 favor.

19 (Response)

20 CHAIRMAN TYLER: Opposed.

21 (No response)

22 CHAIRMAN TYLER: Motion approved as
23 read. Bob, we're right into action items with
24 Tom. Tom Reid.

25 (Mr. Salley enters)

1 MR. SALLEY: Good morning.

2 MR. REID: I'm just going to review the
3 subchapter rules we're proposing and answer any
4 questions.

5 My name is Tom Reid, from the Water
6 Protection Bureau, DEQ. And I believe everyone
7 has a copy of the proposed revisions to Subchapter
8 12 in their packet, or were on the table in the
9 back. And what I'd like to do today is just kind
10 of walk through those briefly and answer any
11 questions that the Council has. We are proposing
12 to take these rules to the Board in May, the May
13 14th meeting to initiate rulemaking, so we're
14 requesting a Council recommendation on that.

15 We did come to before the Council back
16 about a year ago and give a brief introduction.
17 We are in the process of updating the MPDES rules,
18 Montana Pollutant Discharge Elimination System
19 rules, to bring them into conformity with
20 40 CFR 123.25, which are the Federal regulations
21 that prescribe what a state MPDES program must
22 have. Those are minimum requirements to issue
23 permits under the National Pollutant Discharge
24 Elimination System.

25 We're going to do this in a phased

1 approach. This is Phase 1. We'll probably have
2 two more, at least two more, probably more like
3 three phases that will come forward to the Board,
4 or to the Council and ultimately the Board.

5 As we started out, it was a broader
6 package, including both Subchapters 12 and 13. We
7 found out that that was just too much information,
8 so this is focused on Subchapter 12, which
9 establishes minimum treatment requirements in the
10 sense of the Federal Clean Water Act for existing
11 and new source discharges.

12 We've had these rules adopted by
13 reference in the past. So in this rulemaking,
14 we're clarifying and updating what rules need to
15 be -- Some of those rules that we had incorporated
16 by reference were eliminated from the Federal
17 Clean Water Act and Federal regulations by 1987
18 amendments to the Federal Clean Water Act and
19 subsequent amendments, so we're trying to bring
20 our rules in line with the Federal rules.

21 Our Subchapter 12, which is what we're
22 talking about today, is the equivalent of
23 40 CFR 125, and 40 CFR 125 establishes minimum
24 treatment requirements for national NPDES issued
25 permits, so we're clarifying the title and purpose

1 of scope to align with those Federal regulations.

2 In short, Subchapter 12 establishes
3 effluent limitations for existing sources, and
4 effluent limit guidelines which are published by
5 EPA under Section 304 of the Federal Clean Water
6 Act in 40 CFR Subchapter (N), which is a large two
7 volume set, so we incorporate that by reference.

8 Subchapter 12 also establishes effluent
9 standards and standards of performance for new
10 sources. New sources are any source that proposes
11 to discharge after the promulgation of the Federal
12 New Source Performance Standards. So those are
13 equivalent to 125.3.

14 And we also in this rulemaking package,
15 which is the first time we've adopted rules for
16 cooling water intake structures, these are
17 facilities that generate electricity for sale. At
18 least 25 percent of the cooling water is used for
19 the purposes of cooling generating facilities, and
20 they're subject to regulation under the Federal
21 Clean Water Act.

22 We're also establishing and updating our
23 variance procedures for MPDES permits to reflect
24 the current Federal rule, eliminating variances
25 for POTW's, which are no longer recognized under

1 the Federal Clean Water Act, and in recognizing
2 the three remaining variances for non-POTWs or
3 industrial facilities.

4 So that's basically an overview of 1203
5 criterion standards for technology based treatment
6 requirements, so I'll stop at this point and ask
7 if there are any questions on those rules up to
8 this point.

9 CHAIRMAN TYLER: Board questions?

10 I heard a rustle on the telephone.

11 MR. FISHER: Nothing here.

12 MR. REID: Hearing none, I'll move on to
13 1206, which are effluent standards for toxic
14 pollutants. Again, these have been incorporated
15 by reference since the 1970s, but we're trying to
16 clarify how they fit and which group of toxic
17 pollutants are being addressed by 1206.

18 1206, EPA and the Federal Clean Water
19 Act have adopted toxic pollutants twice, and there
20 is two different categories. The first category
21 has to do with the original six toxic pollutants
22 that were adopted in 1977, and that's what's
23 addressed in 1206. In 1977, Federal Congress
24 amended that list of toxic pollutants, 65
25 different categories, and those all have different

1 levels of treatment requirements for facilities
2 that manufacture or discharge those pollutants.

3 Rule 1207 is effluent limits and
4 standards performance for new sources, so that
5 defines and mandates that we apply new source
6 performance standards for new sources. Again,
7 those are defined as sources that discharge after
8 the adoption of the new source performance
9 standards, and there are no variances and
10 compliance schedules that are allowed for new
11 sources.

12 We're eliminating Sections 1208 and 1209
13 because they became redundant when we incorporated
14 and updated 1203. 1203 specifies minimum
15 treatment requirements for POTW's and non-POTW's,
16 or industry and commercial dischargers, so there
17 was no need to have --

18 In the old rules, the old rules, the
19 whole Subchapter 12 was only four pages long,
20 because we adopted everything by reference; but
21 again, it was very confusing to both the regulated
22 community and permit writers, because EPA has a
23 number of requirements that apply only to EPA.

24 So those Federal requirements, if you go
25 to the Federal rules, get kind of twisted around

1 because in some cases we're only delegated for
2 three of the five Federal programs. We don't
3 apply rules to the programs that aren't delegated,
4 we're not delegated for, those are administered by
5 EPA, so we have to split through that.

6 And then there are additional
7 requirements for EPA issued permits, in the sense
8 that any EPA issued permit would have to go
9 through a 401 certification process, and so we
10 want to sort all that stuff out that doesn't apply
11 to us, and really adopt what rules do to apply.

12 So we have eliminated 1208 and 1209, but
13 we still refer to those sections in other places.
14 So the net effect is we still have effluent limits
15 for hazardous substances and other toxic
16 pollutants.

17 So those are the basically the changes
18 in the existing rule. The remainder of the rule
19 package addresses the new rules, rules that we
20 have not seen in the State of Montana yet, but are
21 Federal rules; and again under 125, we are
22 required to adopt those.

23 And the first one, New Rule I, has to do
24 with thermal variances under Section 316(a) of the
25 Federal Clean Water Act, and those are for

1 discharges from steam generated facilities, that
2 may have to comply with State water quality
3 standards, but can apply for a variance from those
4 standards under 316(a). So that's a variance
5 procedure. We currently don't have any permits
6 for facilities that are subject to 316(a)
7 variances. When we adopted mixing zone rules back
8 in 1990, most of the need for 316(a) variances
9 were eliminated.

10 So moving on to New Rule II. Now,
11 that's on the effluent side. So far everything
12 we've been talking about applies to effluents for
13 the discharge from regulated facilities. The
14 remainder of the rule package has to do with
15 intake structures and the requirements that would
16 be applied to either new sources -- I should say
17 new facilities. We're changing, using the term
18 "source" to "facilities" -- or existing
19 facilities.

20 New Rule II establishes technology based
21 requirements for cooling water intake structures.
22 New facilities are defined as any facility that
23 either commences operation or begins construction
24 after January 17th, 2002. That's the date that
25 EPA published their rule, and so that's the date

1 that's established in Federal rule to split
2 between new and existing facilities. So new
3 facilities are anything that are constructed after
4 January 17th, 2002, and have a cooling water
5 intake structure, and that cooling water is used
6 in steam generation for electrical transmission.

7 New Rule II requires that these
8 facilities apply the best technology available for
9 minimizing environmental impact. That's a BTA
10 standard. That is different from BBT, BAT, BCT,
11 BDT, and BTA. Those are different levels of
12 requirement under the Federal Clean Water Act,
13 technology based requirements that we have to
14 apply in permits.

15 New Rule II breaks into three categories
16 these new facilities. New facilities less than
17 two million gallons per day, that standard must be
18 applied by the permit writer on a BPJ basis, best
19 professional judgment. I'm sorry. I'm probably
20 throwing out a lot of acronyms that I haven't
21 defined, but they're all in the rule. So
22 facilities under two MGD are required -- the
23 permit writer must apply best professional
24 judgment.

25 Facilities over -- and that's based on

1 BPT, best practical treatment technology,
2 currently available. That's the level of economic
3 analysis that must be applied.

4 Facilities between two million gallons
5 per day and ten million gallons per day on their
6 intake structure must reduce their intake velocity
7 to less than five feet per second. The whole goal
8 here is to minimize what's called impingement
9 mortality and entrainment mortality. Those are
10 the two things that we look at under these rules.

11 Impingement mortality is when a fish is
12 impinged on the intake screen. Most cooling water
13 structures use a three-eighths inch traveling
14 screen to keep debris and large objects from
15 getting sucked into the intake structures. That's
16 been the base technology since the 1950s for
17 cooling water intake structures. If you minimize
18 the intake velocity, then you minimize what's
19 being impinged on those intake structures.

20 Entrainment is the other major factor
21 that we look at in applying PBJ, or any of these
22 criteria. Entrainment is the stuff that goes
23 through the screen and into the facility, and
24 obviously that's smaller stuff. So most of the
25 larger fish are caught on the intake structures,

1 and the smaller aquatic organisms, fry, eggs, and
2 things, are entrained in the facility; and
3 ultimately when you go through a power plant,
4 usually it results in 100 percent mortality.

5 So the requirement for facilities again
6 is graded from less than two, two to ten, and then
7 over ten. Facilities over ten MGD, EPA has
8 identified the model technology for these
9 facilities as closed cycle recirculating cooling
10 water system. So facilities over ten MGD, new
11 facilities over ten MGD, must reduce their volume
12 of water to a level commensurate with that type of
13 facility. So that's the requirement.

14 There are some other requirements. They
15 can't take any more than 5 percent of the flow, of
16 the mean annual flow of the river. For lakes,
17 there is other requirements, but those are all
18 outlined, and I think fairly clearly established
19 in the rules. And these rules are, where there is
20 a State program that we administer, these rules
21 are equivalent to the Federal rules. They're no
22 more stringent. We've not tried to add in any
23 Montana specific requirements in these technology
24 based rules.

25 So these are all in different sections,

1 but the less than two is Subsection (3); the
2 between two and ten are in Subsection (8) of the
3 rule; and facilities greater than ten MGD
4 requirements are in Subsection (7).

5 Subsection (9) says, well, if you can't
6 meet that, there is some alternatives, and if you
7 can't meet those, then you can make some
8 alternative showings that we can look at, and
9 grant basically a variance from these
10 requirements. And those are outlined in Section 9
11 of this rule, and also again in New Rule IV,
12 alternative requirements calls for
13 disproportionate with model technology. So those
14 are a lot of factors that we look at for granting
15 variances to those model technologies.

16 Any questions?

17 MR. LIEU: Tom. Mitchell Lieu. What is
18 the difference between incorporating by reference
19 and actually writing the rules down? Is there an
20 advantage as far as ease of use, or enforcement,
21 or why the change?

22 MR. REID: First of all, we did not have
23 any of these rules incorporated by reference, of
24 these cooling water intake -- Of these New Rules.
25 I think the advantage to having them on our books,

1 so to speak, is that we have a lot of facilities
2 that come in, and they have these cooling water
3 intake structures, but the permit writers don't
4 even pick up on that. So we permit them, we issue
5 them an MPDES permit, and we haven't applied to
6 the rule, and then the EPA comes back and says,
7 "Well, you're not following the Federal rule."

8 So this kind of gives us, the permit
9 writers, a play book.

10 MR. LIEU: A bit more visibility.

11 MR. REID: Yes. And it also -- I've had
12 a lot of calls from facilities that want to locate
13 in Montana. They may want to build. It doesn't
14 happen every day. But their first question is:
15 "What do you do for 316(b)? Who is administering
16 that in Montana? Do we have to go to EPA, or do
17 we have to go to the State?" And then the next
18 question is -- because we're delegated to that
19 aspect of the MPDES program. And the next
20 question is, "What standards are you going to
21 apply to me? Are you going to be more stringent
22 than Federal rules?"

23 So what this does is it kind of gives us
24 enough to work with, so that we define how we're
25 going to apply these rules. And then we've

1 incorporated by reference. We've still
2 incorporated a significant portion of these rules
3 by reference, where it's clear and explicit that
4 you do A, B, and C, and those are the same things
5 that --

6 The monitoring requirements and
7 reporting requirements, we are adopting by
8 reference, so we're leaving those sections out
9 there. So we're just saying after we do all this,
10 this is what we're going to do in issuing a
11 permit. Then we have to have these monitoring
12 requirements and reporting requirements. So I
13 guess that's kind of the difference.

14 Again, the Federal regulations, a lot of
15 the regulations refer back to the Federal Clean
16 Water Act, because that's where they get their
17 authority. So in reading and applying the Federal
18 Clean Water Act or in Federal regulations, it may
19 say something like, "Pursuant to Section 304(j)(i)
20 of the Federal Clean Water Act," so it qualifies
21 how you apply that. Then you have to go look at
22 the Federal Clean Water Act. By that time, you've
23 probably thrown it away, and gone on to do what
24 you have to do.

25 So I think these rules give a pretty

1 clear road map of how we would write a permit, and
2 when we have to go to the Federal rules, we go
3 there.

4 The next rule that we're -- I think
5 we've covered New Rule II for new facilities. New
6 Rule III integrates with that, and it is the
7 information requirements that we would require
8 that a facility -- this takes an intensive amount
9 of information. It's a lot of information.

10 We are currently in the process of doing
11 this for an existing facility, and it took three
12 years worth of baseline data. It took a lot of
13 engineering, and design work, and economics, and
14 cost comparison to come up with that. We don't
15 want to have to do that. We want the discharger
16 to come up with that information. So that is
17 what's in New Rule III, is the information
18 requirements for those new facilities.

19 And then New Rule IV, I think I already
20 mentioned it briefly, is alternative requirements,
21 and that's when all of the information you
22 collected, because of some site specific factor,
23 says that the cost to that new facility is totally
24 disproportionate with the cost that EPA considered
25 in developing this rule. And they looked at

1 everything. They looked at all of the various
2 technologies that exist to minimize impingement
3 and entrainment at cooling water facilities, and
4 they have volumes of documents of what they call
5 their technical support documents for this rule
6 where all those costs were compared.

7 So if it says because of some unique
8 factor that a facility in Montana would have, it's
9 wholly disproportionate with the costs that are
10 normally associated with that type of technology,
11 then we can grant them. Then this provides -- I
12 don't want to call it a variance because
13 technically it's not a variance. It's an
14 alternative requirement.

15 And finally, we get down to New Rule V,
16 which is the last, is technology based
17 requirements for existing facilities. These are
18 facilities that were existing in Montana, in this
19 case, prior to January 7th, 2002.

20 In that case, the EPA promulgated -- if
21 you look in the Federal regulations, they were
22 promulgated and adopted in 2002. They were in
23 litigation for almost five years. And in 2007,
24 EPA suspended that rule, all but one portion, and
25 that one portion remains on the books, and it says

1 that for existing facilities, the permit writer
2 must use best professional judgment, which has
3 been the requirement since 1973.

4 EPA promulgated rules in the 1970s for
5 cooling water intake structures. Then in the
6 1970s, again, those were challenged by industry,
7 and thrown out. Then they were sued for not
8 having rules, and they reached a settlement with
9 the Court. And I'm kind of skipping over a whole
10 bunch of stuff of the process here. So in 2002,
11 they came out with these rules again. They were
12 sued again in 2007. EPA suspended those.

13 These rules have been debated, and some
14 the most interesting discussion was the
15 discussion, the Supreme Court discussion on the
16 ENTERGY case, which is a company in Massachusetts,
17 I believe, and they were challenged, and the
18 Supreme Court ruled ultimately in favor of the EPA
19 rules, but they had already suspended them. And
20 they determined that the level of treatment
21 technology applicable to cooling intake structures
22 was based on best practical technology currently
23 available, BPT. So that's the test that we are
24 now using for existing facilities, and that's in
25 New Rule V.

1 And that's it. I'm happy to entertain
2 any questions.

3 CHAIRMAN TYLER: Questions for Dr. Reid?

4 (No response)

5 CHAIRMAN TYLER: Tom, you're hoping to
6 come away with a recommendation that the
7 rulemaking proceed; is that it?

8 MR. REID: That's correct.

9 CHAIRMAN TYLER: Discussion from the
10 board? Questions? Discussion? Comments?

11 (No response)

12 CHAIRMAN TYLER: Do we have a motion?

13 And while Tom is here, maybe somebody needs to
14 have help with that motion.

15 MR. LIEU: Motion to recommend to
16 proceed with rulemaking.

17 CHAIRMAN TYLER: Second?

18 MR. SALLEY: Second that.

19 CHAIRMAN TYLER: Earl second. Further
20 discussion.

21 (No response)

22 CHAIRMAN TYLER: All in favor by voice
23 vote.

24 (Response)

25 CHAIRMAN TYLER: All opposed.

1 (No response)

2 CHAIRMAN TYLER: Motion carries. Thank
3 you, Tom.

4 So I guess the whole day is going to be
5 abbreviated. Tom, you've got another half hour.
6 Maybe you should come back. Claudia isn't here to
7 replace John North for our legislative update,
8 although she's not on the schedule until eleven.
9 So should we do a little flip flopping here and
10 ask Jenny to present on the pesticide fee rule?
11 Can you do that?

12 MS. CHAMBERS: Sure. Good morning.
13 Jenny Chambers, Bureau Chief, Water Protection
14 Bureau. I just wanted to kind of a briefing item.
15 I just want to get you guys kind of up to date and
16 up to speed on where we're at on the pesticide
17 program.

18 If you recall, I came to the WPCAC to
19 request approval to initiate rulemaking to impose
20 a fee rule structure or infrastructure so that we
21 could have a fee assessed in the fee rule package,
22 so that when we developed a pesticide general
23 permit that we'd have a mechanism to charge a fee
24 for that new permit that may be required or may be
25 issued. We did initiate rulemaking, and we're

1 planning on going back to the main meeting to the
2 Board to ask for final adoption of that fee rule
3 package.

4 So history, a little bit. The Sixth
5 District Court basically required, changed the
6 exemption under the Clean Water Act that now
7 requires pesticide applicators to State waters to
8 be compliant with the Clean Water Act, and
9 therefore have an NPDES discharge permit, National
10 Pollution Discharge Elimination System permit.

11 As Tom indicated, since we are the
12 delegated state for primacy under that program, we
13 would then be required to issue MPDES permits for
14 direct applications of pesticides to State waters.
15 So that was a ruling that came out April 9th,
16 2009. EPA appealed the Courts, asked for an
17 extension of time to allow, not only them at the
18 national level to develop a permit, but also allow
19 the states that have delegated primacy to develop
20 a permit, and that -- it will expire April 9th, or
21 did expire April 9th, 2011. There has been some
22 things that have happened between now and then
23 that I'll talk a little bit about.

24 So because that permit requirement was
25 in place, we need to not only develop a permit,

1 but we also needed to have a fee structure set up
2 in order to request or receive applications, or
3 notices of intent to comply with those permit
4 conditions. So that was a fee rule package.

5 There was some fees that were
6 established that were pretty high. Trying to
7 figure out what our universe was, where we were at
8 on NOI applications. We basically looked at
9 having a single county coverage, and then a
10 coverage area that was based upon Montana
11 Department of Agricultural district area in the
12 proposed package, and the fees were around \$1,500,
13 \$1,600 in the original proposed package. We have
14 subsequently reduced those based on response to
15 comments.

16 We got quite a few comments, which we
17 knew we would get. You always do when you get fee
18 rule packages. They're cut back pretty much by
19 half. We looked at two different threshold levels
20 in the final permits, so we have a single county,
21 multi-county NOI, that's below the threshold use
22 of pattern uses; and then above threshold for kind
23 of risk based application of pesticides to State
24 waters.

25 For instance, if there is a weed and

1 algae, and you're spraying directly on State
2 waters, at 64 acres you're above that threshold.
3 If you do more application than that, then you hit
4 that threshold trigger. Anything below that, you
5 would file an NOI to say you're going to comply
6 with the Tier 1 portion of that permit. We
7 changed the district area MDA to --

8 OPERATOR: Mike Wendland is joining the
9 meeting.

10 CHAIRMAN TYLER: Good morning, Mike.
11 It's Dude. We're in the middle of Jenny Chambers'
12 presentation. We've hopped around on the agenda.
13 Claudia is here for the 11:00 legislative update,
14 but we finished with Tom Reid's presentation a
15 little early, and so we're hearing Jenny Chambers'
16 pesticide fee rule presentation.

17 MR. WENDLAND: Good.

18 MS. CHAMBERS: And we got a lot of
19 comments on breaking it up by the Montana
20 Department of Agricultural field district area, so
21 we looked at a multi-county designation of 20
22 contiguous counties, so an applicator could choose
23 to have permit coverage or NOI coverage for 20
24 counties, that they would then pick what counties
25 they wanted coverage on. It had to be contiguous

1 county area to break the state up that way.

2 So there's a below threshold level,
3 which is a Tier 1 in the permit, and there is
4 either a single or multi-county, and those fees
5 are very minimal. It's \$25 for single county, \$50
6 for application for multi-county, and those are
7 below the threshold, which is more just a notice
8 of intent you're going comply with the permit
9 conditions; and then above the threshold, that's
10 where your risk is based, based upon applications
11 to surface water. There is additional
12 requirements that are Tier 2 annual reporting
13 requirements, pest management plan development,
14 and all of them have adverse incident reporting
15 based upon that permit condition.

16 So where we're at in the process
17 basically is that we're going to the main meeting
18 at the BER to ask for final adoption of that fee
19 rule package. We've done a tremendous amount of
20 stakeholder work throughout this whole process, so
21 I'm pretty comfortable with where we're at as far
22 as going to the Board.

23 We issued the permit April 9th, 2011, so
24 it's currently posted on the website now. EPA has
25 got another extension from the Court system to not

1 require NOI's. They're still working on their
2 actual permit, and so the Courts extended them
3 through October 31st, 2011.

4 We already were kind of banking on that
5 going through the process before we issued the
6 permit on April 9th. We have six month delay of
7 effective date on our permit, so the permit issued
8 April 9th will not be effective until November 1.
9 So through this next season, pesticide applicators
10 would just have to comply with our 308, under
11 section 308 program, and then we can work on
12 technical assistance and education through the
13 winter, and then get them to submit NOI's for the
14 next season if it goes forward. So we're kind of
15 in line with that with the Federal action.

16 There is also a House resolution bill in
17 Congress that passed the House of Representatives.
18 They're looking at amending FIFRA to make it clear
19 and concise that pesticide application to State
20 waters will be covered under FIFRA, so we don't
21 have a duplication between what's complied with
22 under the Federal Insecticide, Fungicide,
23 Rodenticide Act, compared to what's complied with
24 under the Clean Water Act.

25 And so we're just watching that, we're

1 watching that legislation to see what happens. It
2 hasn't been presented in front of the Senate yet.
3 It passed the house. And if federally they change
4 the exemption back, where they make it clear and
5 concise, and it's not the dual Federal act
6 requirements, we'll pull that back, and ultimately
7 eventually we'll go back to the Board when we go
8 to the rulemaking again for fees, and we'll repeal
9 that section of those rules that we've already
10 promulgated, or we've asked for to adopt.

11 So it's kind of been a fun exercise the
12 last couple years to track the different stages of
13 where we're headed, try to get our programs built
14 as far as infrastructure, get the permit, work
15 with stakeholders, and move forward. So I just
16 want you guys -- to kind of bring you up to date
17 on where we were, and that we have complied with
18 that requirement, and we had the mechanisms just
19 in case we need to pull things back as we move
20 forward.

21 Any questions?

22 (No response)

23 CHAIRMAN TYLER: Do you want to
24 continue, Jenny, or should we go back to our
25 agenda and --

1 MS. CHAMBERS: I didn't know if you
2 wanted to keep CBM altogether.

3 CHAIRMAN TYLER: Okay. Let's do that.

4 MS. CHAMBERS: Tie it together.

5 CHAIRMAN TYLER: So Claudia is here in
6 place of John North for our legislative update.

7 MS. MASSMAN: I don't have a lot here.
8 This is sort of a last minute deal, so I'm just
9 going to tell you the bills that went through that
10 have to do with water quality.

11 The first one is House Bill 52, and
12 gives the Board of Environmental Review rulemaking
13 authority to adopt rules and standards for
14 reclamation and reuse of wastewater.

15 The next bill is House Bill 28. That
16 has to do with mixing zones, and what it does is
17 say that any mixing zone cannot go beyond the
18 boundaries of a subdivision. I guess the bill has
19 an immediate effective date, so from now on, when
20 we're reviewing subdivisions, mixing zones won't
21 be able to go beyond the boundaries.

22 Senate Bill 267. That has to do with
23 TMDL's. We had a 15 year deadline for completing
24 all TMDL's on a 1996 list. This bill removes that
25 deadline, and doesn't make us work on a specific

1 list, so the Department now has discretion to do
2 TMDL's wherever we think is appropriate.

3 However, this bill does not remove the
4 Federal Court imposed deadline. The thought was
5 that we go ahead and get this bill passed, and
6 hopefully convince the Plaintiffs that we could go
7 back to Judge Molloy, and get the other deadline,
8 Court imposed deadline, removed, but that has yet
9 to happen. But anyway this sets the stage for
10 that.

11 Senate Bill 367. That bill goes back
12 and revisits -- We had a bill pass last year that
13 would allow the Department to give individual
14 variances from base numeric nutrient standards.
15 These base numeric nutrient standards have not yet
16 been brought before the Board, but the Department
17 wanted to make sure that when the base numeric
18 standards are adopted, there would be a mechanism
19 in place so that wastewater systems that can't
20 meet those standards would have a chance to get an
21 individual variance.

22 Over the past two years, we've been
23 looking at what's called a nutrient work group,
24 and it's been very difficult to determine how we
25 do these individual variances for a number of

1 reasons. It's kind of resource intensive. We
2 kind of got bogged down on how to figure out how
3 to give individual variances for industry, because
4 part of the test that EPA wants is that you
5 demonstrate widespread and substantial economic
6 harm.

7 There was also confidentiality issues
8 related to getting the industry to come in and
9 explain their finances, and why it was going to
10 cause economic hardship for them.

11 So this year, kind of at the last
12 moment, industry brought in a bill, and we all
13 worked together on it, and this bill goes back and
14 adds a general variance to what is now 75-5-313.
15 That's the statute that allows us to give
16 individual variances. That statute has been
17 amended to say that if you have a certain type of
18 discharge, and you qualify by meeting certain
19 numeric limits, you automatically qualify for a
20 general variance.

21 And the Legislature kind of backed that
22 up by making a legislative declaration that anyone
23 trying to meet the base numeric standards is going
24 to suffer widespread economic harm or impacts. So
25 the Legislature has already made that finding, and

1 then they've adopted these general variances.

2 Those general variances will sunset in
3 2016. The numbers in the statute now will
4 disappear May something 2016, but the statute also
5 requires the Department -- before the statutory
6 numbers disappear, we're supposed to adopt those
7 numbers into rule, and it's the Department, not
8 the Board, that will have rulemaking authority to
9 adopt these general variances in rule.

10 Then the Department is supposed to go
11 back and revisit the numbers that the Legislature
12 has adopted every three years, and if it becomes
13 more feasible to kind of ratchet those numbers
14 down, then Department will go through another
15 rulemaking, and adopt new numbers for these
16 general variances.

17 I guess I explained more about that bill
18 because we've been quite intimately involved in
19 trying to see that through. It's going to help
20 the Department, we think, get the base numeric
21 standards adopted, because the individual
22 variances, it was kind of like we can't get the
23 base numeric standards adopted without some
24 mechanism to give dischargers relief; and with
25 these statutory variances in place, we think that

1 step has been accomplished.

2 And the last one is Senate Bill 9, and
3 this also has to do with mixing zones, and it's a
4 way for -- I think it's the Department can grant
5 mixing zones for petroleum clean-up sites. I
6 don't know a lot of details about that, but that's
7 another one that had to do with water quality.

8 And that's all I have to report. If
9 there is any questions.

10 CHAIRMAN TYLER: Thank you, Claudia.
11 Any questions for Claudia.

12 MR. HOEHNE: Richard Hoehne. Claudia,
13 the mixing zone for subdivisions, the mixing zone
14 has to stay within the whole subdivision, not on
15 lots, correct?

16 MS. MASSMAN: That's right.

17 CHAIRMAN TYLER:

18 MS. CHAMBERS: Unless they get an
19 easement. You can still allow for an easement off
20 the property. If they get an easement from that
21 neighboring property to allow the mixing zone to
22 extend on that property. So -- and that's for new
23 subdivision development, so it still should be
24 able to provide some growth if they are able to
25 get easement on that neighboring property for the

1 disclosure.

2 CHAIRMAN TYLER: Thank you, Claudia. No
3 more questions?

4 (No response)

5 CHAIRMAN TYLER: So Jenny, is it time
6 for us to move into the CBM?

7 MS. CHAMBERS: Again, Jenny Chambers. I
8 don't have a lot to present. I just wanted to
9 kind of do a brief update on coal bed methane, and
10 permits, and kind of where we're headed, and how
11 the permit shop does compliance and oversight I
12 guess on the permits that we issue, in kind of
13 general sense, kind of lay the framework.

14 Currently the status in Montana is that
15 we have three coal bed methane permits in the
16 whole state of Montana; not nearly as many as
17 Wyoming has had or have. Production I think has
18 gone down quite a bit in the last several years.

19 We have one current permit with Fidelity
20 Exploration Production Company issued 11/14/2010;
21 one for Pinnacle Gas, or Summit Gas. They've
22 changed their name. Admin. continued. It expired
23 on 12/31/2009. However, we have got that drafted,
24 and it's scheduled to go out for public notice
25 4/18/2011. And then one for OW Ranch, which was a

1 new discharge, new permit facility that was issued
2 December 2010.

3 So we're maintaining these permits.
4 We're getting them renewed fairly quick behind the
5 expiration date, so I'm pretty proud of that as
6 far as the group goes. We conduct routine
7 compliance inspections, and the frequency of coal
8 bed methane inspections in some of our industrial
9 dischargers exceeds the recommendation of
10 frequency from EPA. EPA recommends that major
11 facilities be inspected once every two years, and
12 minor facilities be inspected once every five
13 years.

14 Currently Pinnacle Gas or Summit Gas,
15 we've done six inspections since that permit was
16 issued. The last one was 9/29/2009. Fidelity has
17 had four inspections since it was issued. The
18 last one was in 2009. And the OW Ranch was a new
19 permit, like I said, in 2010. We've had a site
20 visit on file. There is nothing to really
21 inspect. It was more of a prepermitting site
22 visit to get a general sense of the layout of the
23 land and the area. There is no discharge at the
24 facility, and there is no treatment plant built.

25 During compliance inspections, we have

1 three main objectives. We determine whether the
2 discharge is in compliance with regulations,
3 permit conditions, and other program requirements.
4 We verify the accuracy of information submitted by
5 the permittee, and we verify the accuracy --
6 adequacy and sampling and monitoring conducted by
7 the permittee. It's a self-monitoring program
8 that requires them to submit discharge monitoring
9 reports. They have extensive sampling and
10 monitoring requirements.

11 And when we go do a compliance
12 inspection, we look at bench seat date
13 information, make sure they report the information
14 correctly. We will collect our own samples as
15 well to verify results.

16 So coal bed methane facilities, permits
17 are required, sample requirements, both of the
18 effluent, the discharge, and in-stream monitoring.
19 We justify and document a lot of our inspections,
20 sampling data, and compliance status in the permit
21 fact sheet, so we look at, review those every five
22 years as far as history and compliance trends. We
23 do extensive inspection reports when we do those
24 inspections.

25 And since Pinnacle Gas or Summit Gas's

1 CBM permit will be going out for public notice
2 here next week, that would be a good example to
3 look at, the new, recently issued, drafted,
4 Pinnacle Gas Renewal permit, if you wanted to look
5 more closely at a coal bed methane discharge
6 permit.

7 Also Pinnacle Gas has not directly
8 discharged since 2007. They currently have
9 off-channel storage ponds and injection. So we
10 only have one direct discharger, Fidelity, which
11 has been renewed last year, that requires them to
12 treat all of their effluent. So we've been pretty
13 proactive I think with coal bed methane in
14 Montana.

15 Some of the impacts could be the
16 question between what comes in from Wyoming versus
17 where we're at in Montana, but that's kind of a
18 general overview of the permits we have, and kind
19 of the reporting requirements that we seek. Any
20 questions?

21 MS. BUCKIN-SANCHEZ: Jenny, I have a
22 question. Is the permitting process similar to
23 Wyoming and Montana?

24 MS. CHAMBERS: We're both delegated
25 states from EPA perspective. Coal bed methane

1 does not have what Tom was referring to, minimal
2 treatment requirements for Federal ELG's that
3 established for all coal bed methane facilities.
4 It is required for the permit writer to do best
5 professional judgment.

6 So I would say with that, yes, there
7 would be a difference in what we consider best
8 professional judgment or the minimal level of
9 treatment needed. Our water quality standards are
10 different, and some of the water quality impacts
11 and standards for Montana are different. So our
12 permits do look different than Wyoming. Good,
13 bad, or indifferent, I don't know. It is just the
14 nature of where we're at.

15 MS. NEUMAN: My question would be
16 concerning the Legislature. Has the Legislature
17 been working on some model rules for the state?
18 If so, could you explain that a little more
19 clearly.

20 MS. CHAMBERS: I'm not really clear.
21 There hasn't been any legislative actions on model
22 rules for coal bed methane. They've been working
23 on carbon sequestration from the deep injection of
24 carbon footprint, but not in coal bed methane for
25 discharge directly.

1 There was some question at one time
2 whether or not we had legislative authority to do
3 best professional judgment, to require a minimal
4 level of treatment for coal bed methane
5 facilities. The Courts has resolved that now for
6 us, so we do have the authority.

7 MS. NEUMAN: This had to do with setting
8 standards. Say you had a piece of property, and
9 they were going to do some discharging near you or
10 whatever, and the effects. They would set some
11 standards of the agricultural land as it is now,
12 and then any degradation that may occur should
13 some of the water affect the quality of the soils
14 afterwards.

15 MS. CHAMBERS: Well, maybe Bob could
16 talk a little about the water quality standards
17 for coal bed methane discharger in the Tongue
18 River Basin is based upon the use of agriculture,
19 and so the permits are written to protect based
20 upon the standard that's been developed, but it's
21 a standards in the BER rule package, not a
22 legislative action.

23 MR. BUKANTIS: I think perhaps what you
24 might be getting at, Stevie, is I know there is
25 some legislation that was looking at, I know at a

1 minimum, removing some funding from some program
2 that would reimburse landowners from any potential
3 damages. And I haven't been tracking that. I'm
4 not sure where that is at. Roger, you and I were
5 talking about that just a little bit earlier. I
6 don't know if you have anything, if you know any
7 anything about that.

8 MR. MUGGLI: I'm Roger Muggli. The
9 situation is extreme, when we've had the mentality
10 that we're going to permit, based on the river or
11 whatever ideas that are out there, and we didn't
12 take into account the soil types that are
13 irrigated. In lies the problem. The problem is
14 that you have clay type soil anywhere from an
15 amount of 5 percent in some cases to 80 percent.
16 You have a different effect range on that soil,
17 and what happens with it after irrigation with CBM
18 water.

19 And if that isn't complex enough, the
20 alternative thing that really moves this is if you
21 have a rain event, and the rain event, if it
22 happens an hour after you've irrigated, or ten
23 hours, or 30 hours, it has a profound effect,
24 because you have that shift of EC and SAR. The EC
25 drops and the SAR goes up, and in lies the

1 problem. And you compound the complexity of the
2 issue with the percentage of clay soil you have,
3 and there lies the problem. That's where we have
4 had the collapses on our place. The soil varies.

5 In my presentation, I have some pictures
6 that can show how this is brought to light. And
7 when you see these collapse situations on these
8 fields, which we have never seen before CBM, the
9 elevation of the EC and SAR in the water is where
10 you have the problem. If you irrigate, the type
11 of soil is where the problem comes in. If you
12 have sandy type loam, that isn't the case.

13 On our farm we've seen this steadily
14 dropping, and tons per acre average on the farm.
15 So it's a monumental problem, based on the State's
16 inability to make these standards applicable to
17 soil type. There needed to be soil range in there
18 that was incorporated into this, or it's an
19 invalid discharge permit. There is nothing -- It
20 is relative to nothing. It's all relative to
21 soil, how much of a percent of CBM water you can
22 utilize. It's all about the soil.

23 MS. CHAMBERS: So we can get with Bob,
24 and maybe figure out what that legislative number
25 is, and look it up, and see what the status is,

1 and get back to the Chairman.

2 MS. NEUMAN: I think it goes into effect
3 July 1st, was my understanding.

4 MR. BUKANTIS: And the piece of
5 legislation I was talking about is a land owner
6 type bill. I think that's what you're -- we can
7 follow up on that for you.

8 MS. NEUMAN: Okay.

9 CHAIRMAN TYLER: Did that answer your
10 question, Stevie?

11 MS. NEUMAN: Yes. Bob and I are on the
12 same page, I think.

13 CHAIRMAN TYLER: Questions for Jenny?

14 MR. FISHER: This is Cory. I had a
15 question. I was just wondering if through those
16 inspections, if everything was found to be in
17 compliance, or if there was anything that wasn't
18 quite up to snuff.

19 MS. CHAMBERS: With all inspections or
20 procedures we do, whether it's coal bed methane or
21 POTW's or industry, we do inspections, and we
22 document the findings. Those could be from
23 anywhere from actual violations, to
24 recommendations for improvements, to "please
25 address these, and then provide us a response back

1 30 or 45 days in a response on how you're going to
2 correct deficiencies, or address violations."

3 I can't say specifically on any one of
4 these in 2009 whether or not my inspectors
5 documented any violations. There is nothing
6 significant that's been raised to the level from
7 the inspector to move forward with formal
8 enforcement in order to correct those
9 deficiencies. That's usually the next stage of
10 the game if there are any.

11 So it probably wasn't ability for us to
12 document something, provide us a report back
13 within 30 days, compliance inspector evaluates
14 that they've met the requirements, based on
15 following up after that inspection, and we're
16 moving forward with compliance with the permit
17 requirements.

18 MR. MUGGLI: On these inspections, how
19 was the gallon totals on discharge determined?
20 What did the Department, when the individual went
21 out to inspect these, how did they determine the
22 gallons of discharged water, gallons per minute?
23 Or what was the volume? How did they arrive at --
24 through the inspection, was the volume achieved?

25 MS. CHAMBERS: I'm assuming you're only

1 referring to the direct discharge that we have,
2 which is Fidelity. And at the time, when they do
3 the inspection in 2009, they had like I believe
4 eight to ten outfalls that were discharging at any
5 one moment, but they had a lot of outfalls that
6 were going off around the Tongue. So you can't
7 verify the actual flow. They have monitoring,
8 they have sampling requirements, they would allow
9 you to send sheets of data and information that
10 looked at that. Plus we have the ISIS data base
11 on information.

12 But I'm not at those inspections. You
13 know, I'm sitting in the office in the -- figuring
14 out where we're at. But Dave, can you talk a
15 little bit about what Dan did when he went out
16 there to verify?

17 MR. OLSON: Dave Olson with Fidelity.
18 We have totalizer meters on all the outfalls. We
19 know exactly how much water is going in the river
20 at any given time. At the EPA office, go into the
21 computer, pull up what number, what the outfall --
22 currently we only have three outfalls. Under our
23 new permit, we're only utilizing one. Again,
24 there is a meter on the outfall, radio access at
25 the office. We know exactly what's going to the

1 river at any given time.

2 And I've been involved with all four
3 inspections that we've had, and we go to the
4 outfall, we inspect it, check the meters, that
5 they're working; we go back to the office, he
6 checks all our paperwork, as far as any of our
7 analytical, chain of custody from the lab,
8 analytical reports, DMR's, all of the paperwork,
9 and we've had no deficiencies with any of these
10 inspections. So does that answer --

11 CHAIRMAN TYLER: Thank you, Dave.
12 Questions for Jenny?

13 (No response)

14 CHAIRMAN TYLER: Thank you, Jenny.
15 Roger, do you want to fit your presentation in
16 prelunch?

17 MR. MUGGLI: I can right after a break,
18 if we could have a break first.

19 CHAIRMAN TYLER: Shall we take a break?
20 Let's take a ten minute break.

21 (Recess taken)

22 CHAIRMAN TYLER: We'll go ahead and
23 regroup here, and Roger Muggli has a 45 minute
24 presentation, after which we will break for lunch.
25 Roger, go ahead.

1 MR. MUGGLI: For the record, my name is
2 Roger Muggli, and I manage the Tongue and
3 Yellowstone Irrigation District at Miles City, and
4 we have a diversion dam twelve miles south of
5 Miles City on the Tongue River. It's a ten foot
6 differential in water elevation from front side to
7 back side.

8 And so it's been there since 1886. My
9 family has managed T&Y since 1925, I believe it
10 was, or 1926, around that period of time. My
11 grandfather managed it, and it was severely in
12 debt at the time, and he managed to employ the
13 family to get it out of debt. And my family has
14 basically taken care of the ditch company since
15 that time.

16 My father took the secretarial position
17 in 1957 from my grandfather. My grandfather's
18 reign, two major things that he accomplished was
19 bringing the Tongue and Yellowstone Irrigation
20 District out of debt at a reasonable cost, that
21 irrigators could survive with; and he was one of
22 the authors of the Yellowstone Compact, the third
23 attempt that passed in 1950.

24 My dad took the management of T&Y over
25 in 1957, and his major accomplishment was capping

1 the 300 foot wide or long dam, which was a planken
2 top surfaced with concrete.

3 And anyway, I took over in 1987, and I'm
4 a horse of a little bit different color. My reign
5 or family existence on the farm consisted at a
6 very young age of taking fish out of the field
7 that were entrained in our canal, and moved in the
8 canal some 20 miles downstream. Our farm is north
9 of Miles City. And I'd collect these fish in a
10 bucket out of the irrigation ditches when Dad
11 turned the water off, and go to a different field,
12 and take the fish and put them in a bucket of
13 water, take them to the river, and let them go.

14 And so that was sort of the beginning of
15 my bizarre journey in water quality, water -- do
16 things right on rivers. At a young age I became
17 painfully aware of the environmental impact the
18 diversion dam created, and it's been a lifelong
19 goal to try to do something about this.

20 And so having that vision at a young
21 age, I decided to run for the position my Dad had,
22 which was secretary of T&Y, and I got that
23 position in 1987, and that's when I started
24 raising all the Cain about water and issues
25 relative to fish passage, shared resources,

1 irrigation fisheries problem that is so rampant in
2 some irrigation systems.

3 And I at an early age decided that one
4 way to try to accomplish some of this stuff on
5 these fisheries is not wait until we're dictated
6 to change the format of where irrigated
7 agriculture, especially in the west, the northwest
8 was heading. And as we have seen the results of a
9 lot of pain and suffering relative to irrigated
10 crops/fish passage issues.

11 And I was a firm believer that jumping
12 out in front of this train would maybe be the
13 apropos thing to do. I had really no longing to
14 see fish entrainment into the canal, and it was
15 painfully aware to me, painfully visual there was
16 nothing good to come of it.

17 As a result of the T&Y diversion dam
18 that's twelve miles south of Miles City, hence the
19 name, there was six or seven species of fish left
20 in the Tongue River south of the diversion dam,
21 and 49 species north. And my goal in life was at
22 a young age to change this.

23 Many years went on, and I finally got a
24 new inlet structure which was going to be having
25 to be replaced in my reign with T&Y, in the fact

1 that it was an old, old high pressure head gate
2 systems, two head gates, high velocity, and water
3 rights 187 and a half cubic feet per second comes
4 roaring into the canal at very high velocity. The
5 concrete was chewed off in the bottom as a result
6 of a lot of gravel passage.

7 And the fish would entrain into the
8 channel or the under water channel that went up
9 river from the head gates, and of course they'd
10 get in this -- the migration of these fish, when
11 water gets warm in July and August, always
12 migrated out of that section of the river back to
13 the cooler waters of the Yellowstone, and then
14 they'd migrate back up in the late fall or the
15 spring, depending on the species.

16 But since 1886, the Twelve Mile Dam was
17 the end of the line. They couldn't go any
18 farther. So the downstream issue had to be worked
19 out first, and that was essentially putting in a
20 new inlet head gate system that was complete with
21 a fish louver system that would bypass the fish
22 back into the river below the dam. So that was
23 half of the issue.

24 The other half was putting in a channel,
25 diversion channel, around the end of the dam on

1 the west side, a 600 and some foot long channel
2 that goes around the west side of the dam to allow
3 the migrating species of fish to move back into
4 the Tongue River south of the dam.

5 So anyway, I'm getting a little ahead of
6 myself on that point right now, but I've got some
7 slides that we need to discuss. In light of the
8 folks on the phone, I was going to ask Brenda to
9 read through these things, help me out here, so if
10 you want to --

11 MS. LINDLIEF-HALL: My name is Brenda
12 Lindlief-Hall, and just got recruited to help
13 Roger out, so I'll be reading what he's got up on
14 his Power Point presentation. The first point
15 that he's going to discuss are water quality wins;
16 second, he'll discuss water quality problems;
17 third, he will discuss electrical conductivity and
18 flow data; then he'll discuss crop damage; and
19 then he will further discuss the Muggli Fish
20 Passage.

21 MR. MUGGLI: Incidentally, I'm going to
22 add that it was named after me because of the
23 effort. It wasn't by my design, and I'm not quite
24 that arrogant, but all these years of the process,
25 and it was a long arduous task, and they deemed

1 that it was my reward for all these years. I
2 never took any pay or any money for it because it
3 was the thing to do. It was a case of doing the
4 right thing for the river, and that was why they
5 elected to name the dedication.

6 MS. LINDLIEF-HALL: The 2000 statewide
7 EIS on coal bed methane, it was the Federal and
8 state EIS on oil and gas.

9 And then the second bullet point is in
10 2003, the DEQ issued an NPDES permit for coal bed
11 methane discharges. I guess maybe that's
12 referring to the Ninth Circuit decision requiring
13 NPDES permits for CBM discharges. Then in 2003,
14 all but one in-stream impoundment was eliminated.
15 Is that referring to the legislation that
16 eliminated in-channel impoundments?

17 MR. MUGGLI: Yes.

18 MS. LINDLIEF-HALL: Also in 2003, he
19 Board of Environmental Review adopted water
20 pollution standards for rivers that would likely
21 be impacted by coal bed methane.

22 And then water quality wins in 2006. In
23 2006, the Board of Environmental Review removed
24 the 2003 nondegradation exemption from the rule,
25 from the previous rule, from the 2003 rule,

1 strengthening the teeth of the Board of
2 Environmental Review's water pollution standards
3 adopted in 2003.

4 And then in 2006, Fidelity was denied
5 permission to market water out of state, and was
6 limited on their in-state marketing. And those
7 arose out of decisions by the Department of
8 National Resources and Conservation, and then also
9 by the First Judicial District Court.

10 And I just would clarify that the
11 Department of Natural Resources and Conservation
12 denied Fidelity's permit to market water to
13 Wyoming, to export and market water to Wyoming,
14 and limited their in-state water market. The
15 First Judicial District Court ruled that the water
16 that Fidelity wanted to market was groundwater.
17 They applied to market water they called developed
18 water in their pipeline. The First Judicial
19 District Court ruled that it was groundwater, and
20 so any applications for water rights beneficial
21 use permits had to be predicated on that being
22 groundwater, and not water in the pipeline.

23 And then in 2010, methane wastewater is
24 considered a pollutant under the Clean Water Act.
25 I'm not sure what that is referring to, Roger.

1 You might want to clarify that.

2 MR. MUGGLI: Well, the Clean Water Act,
3 of course, is Federal, and it was just determined
4 that it was a pollutant under that act, and so
5 that's part of our premise of --

6 Our concern is, my concern on it, and it
7 gets pretty convoluted in the fact that we sell
8 seed in our business, and hay that's grown on the
9 river to a lot of folks around, and we have this
10 water gone, and it's pumped out, which is
11 perfectly good drinkable water, that we lose the
12 resource. And so connected with the Tongue River
13 Water Users and all the ranchers on the river that
14 have concerns with water loss, groundwater loss,
15 it is an issue, and it's of huge concern.

16 Of course, it's got sodium bicarbonate
17 in it, and that's fine for you and I and our
18 cattle to drink, but to irrigate with it, it
19 creates a huge problem, based on the soil, the
20 soil classification and type it has. So in lies
21 the problem.

22 MS. LINDLIEF-HALL: The second bullet
23 point says, "Montana DEQ must establish TMDL's --"
24 which is total maximum daily loads -- "for the
25 methane industry." And do you want to --

1 MR. MUGGLI: Basically it has been a
2 long battle to get the industry or the State to
3 establish parameters for this water, hopefully for
4 the better. It is a very difficult problem on
5 soil types. It's all relative to soil, as I
6 stated before. The water quality that is from
7 sodic water is very difficult on the soil, not so
8 much the plant. It is a soil related problem.

9 MS. LINDLIEF-HALL: The next bullet
10 point says, "In 2010, methane wastewater must be
11 treated prior to discharge," and I think that's in
12 reference to the Northern Cheyenne versus DEQ
13 litigation, where the Montana Supreme Court
14 unanimously ruled that the Department of
15 Environmental Quality must use its best
16 professional judgment in establishing effluent
17 limitations for coal bed methane methane
18 discharges.

19 And then in 2010, wastewater practices,
20 such as atomizers and evaporation pits are
21 illegal. I'm not sure what it that is in
22 reference to.

23 MR. MUGGLI: It was just part of the
24 statute, of the legal stuff that they did.

25 MS. LINDLIEF-HALL: Total maximum daily

1 loads, TMDLs, have been postponed time after time.
2 In the last ten years, over 1,080 coal railroad
3 cars of salt have been dumped into the Tongue
4 River.

5 MR. MUGGLI: That was a study that Art
6 Hayes had -- someone did that basically came up
7 with that number, and it was based on what was in
8 the water, and the volume of water at the time,
9 and all those issues.

10 MS. LINDLIEF-HALL: The next slide talks
11 about Whole Effluent Toxicity tests. They're
12 called WET tests. WET tests is the acronym for
13 that. It says, "Fidelity failed WET tests on 156
14 occasions." And then the next bullet point reads,
15 "DEQ let them off without any penalties." And I
16 think that second bullet point is referring to an
17 Administrative Order on Consent where DEQ and
18 Fidelity agreed that they would come up with,
19 devise some means to prevent or to deal with the
20 toxicity, and in return DEQ wouldn't impose any
21 monetary penalties.

22 This next slide is entitled, "Fidelity's
23 MPDES Permit." MPDES permit, as you probably all
24 know, stands for Montana Pollutant Discharge
25 Elimination System. The first bullet point reads,

1 "DEQ redid the permit for Fidelity to include
2 technology based parameters, and failed to require
3 nondegradation."

4 And then the second bullet point reads,
5 "Although discharges must be treated, DEQ is
6 allowing Fidelity to discharge without treatment
7 until this fall." And again under that second
8 bullet point, I believe, that in November of 2010,
9 DEQ and Fidelity entered into an Administrative
10 Order on Consent, giving Fidelity until I believe
11 August of this year to implement full treatment of
12 all its discharges.

13 This next slide talks about the Guercio
14 MPDES permit on Hanging Woman Creek. That's I
15 think also referred to as the OW Ranch permit.
16 Jim Guercio is the owner of that ranch, but I
17 think the official name for that is the OW Ranch
18 permit. And Hanging Woman Creek is a tributary to
19 the Tongue River.

20 And the first bullet point reads,
21 "Standards for tributaries were ignored in issuing
22 that permit. Flow limitations were ignored. Ice
23 jam problems are only being studied, but
24 apparently they won't be studied until 2015."

25 MR. MUGGLI: The flow regime on Hanging

1 Woman is normally really low, and has really
2 notoriously poor water in it. Increasing flow
3 then is this really high EC coming down the
4 Hanging Woman, which impacts the Tongue River in a
5 totally different manner than its original flow of
6 about one CFS, and between one and two CFS, to
7 something in the four to five range. That's a
8 whole another problem that really is exacerbated
9 relative to volume. And then there is the ice jam
10 problems of ranchers on there, just a lot more
11 flow than normal.

12 MS. LINDLIEF-HALL: So Roger, just as a
13 point of clarification. So the problem with ice
14 jams is that that highly saline and sodic water
15 will back up behind those ice jams, and spread out
16 over the soil.

17 MR. MUGGLI: Yes, and then it creates a
18 -- just spreads the problem. It takes longer for
19 it to dissipate when it creates the flow and such
20 that it creates enough ice that it creates ice
21 jams. This water goes down country, starts
22 freezing, and keeps building up, and in the spring
23 it starts moving, and in lies the problem.

24 MS. LINDLIEF-HALL: "Standards
25 violations." This is talking about the water

1 quality standards for electrical conductivity,
2 which is abbreviated EC, and sodium adsorption
3 ratio, which is abbreviated SAR. The first bullet
4 point reads, "EC and SAR standards have been
5 exceeded at Miles City, but no enforcement action
6 has occurred."

7 Do you want to address that one, Roger?

8 MR. MUGGLI: It's all in the time thing.
9 When the exceedence occurs, and then it peaks out,
10 and it will rapidly drop back down, and then there
11 is nothing that seems to be able to happen with
12 it. There is no retribution. So you have this
13 damage to the river, but then it spikes, and then
14 it goes back down. And so of course we didn't see
15 these problems before the days of CBM, and there
16 is a lot of problems with soils and the fisheries
17 as a result of this change. And so it's pretty
18 rapid. It will change very fast. It shifts from
19 high to -- drops off in a hurry and vice versa.
20 It will raise in a matter of a day. It could be
21 way, way high. So in lies the problem.

22 MS. LINDLIEF-HALL: So for this first
23 bullet point, are you saying that the actual
24 numeric standards have been exceeded?

25 MR. MUGGLI: Yes.

1 MS. LINDLIEF-HALL: Then the second
2 bullet point says, "Nondeg," which is the
3 abbreviation for nondegradation, it says, "Nondeg
4 standards have been exceeded several times, but no
5 enforcement action has taken place.

6 MR. MUGGLI: And that's part of the
7 problem. When these exceedences occur, then it is
8 very difficult from anyone's perspective how to
9 sort it out, and so it is sort of -- we blame the
10 animal that's the most obvious, and that's CBM and
11 the discharges, and there's just no way of putting
12 a handle on it. It's very, very difficult.

13 MS. LINDLIEF-HALL: And just for
14 clarification, nondegradation was implemented
15 during the 2006 Board of Environmental Review
16 rulemaking. Nondegradation standards are designed
17 to protect that increment of high quality water
18 between the water quality standards and the actual
19 quality of the water.

20 MR. MUGGLI: We're going backwards up
21 the river now. Miles City, that's the EC on --
22 The dates are at the bottom here of this year, and
23 you could see how radical it will change. When
24 you have an influx of water, whatever the event,
25 the front of the water will be the worst; and then

1 the EC, as it dilutes it, it dilutes the
2 pollutants, and then you have a severe drop, but
3 you have the damage in those ranges.

4 One of the things when you look at the
5 fisheries, you have sauger walleye, for instance,
6 won't -- you get an EC over 1,000, and you limit
7 their reproductive to about four percent, and you
8 can't sustain a population of fish on four
9 percent. And so it is a very difficult thing, and
10 those shocks, when it jumps up that high, that's
11 why the Tongue River now is pretty much void of
12 sauger walleye. You don't find them in the Tongue
13 River anymore, and they used to be --

14 In the 1970s and 1980s, I know behind
15 the diversion dam, there is a fish platform there,
16 and there was a lot of sauger walleye caught
17 there, and anymore it doesn't happen because the
18 EC is too high. They don't use the Tongue as a
19 spawning trib anymore, so they primarily stay in
20 the Yellowstone.

21 And that comment is derived from the
22 fisheries of doing net tests 24 hours a day ever
23 since I have put in the fish passage on the
24 Tongue. You'll see that in a minute. All summer,
25 24 period every week, they net the fish that come

1 up the fish channel on the west side, and they
2 have yet to catch a sauger walleye. There is
3 probably a reason why -- there is no other logic
4 to it, why they're not in that reach of the Tongue
5 River anymore, is because the EC is just too high,
6 and they just stay out of there.

7 MS. LINDLIEF-HALL: I wanted to make a
8 point of clarification. Roger uses the term EC or
9 electrical conductivity. I think that term is
10 interchangeable with specific conductance that
11 you're seeing on this chart, and electrical
12 conductivity or specific conductance is a measure
13 of the salinity of the river.

14 MR. MUGGLI: And you will notice the
15 date on this, March and April. The industry
16 always felt that our irrigated land that is on the
17 Tongue River drainage, meaning T&Y irrigated land,
18 was the reason for elevated EC and SAR, as drained
19 water coming back into the Tongue River between
20 the Twelve Mile and Miles City, whereas 25 percent
21 of T&Y's 95,000 acres is on the Tongue drainage,
22 the rest of it is on the Yellowstone.

23 In this time frame, there is no
24 irrigating there at all. And geographic is really
25 important. Below the Twelve Mile Diversion Dam,

1 there is Pumpkin Creek, Mill Creek, Log Creek, and
2 Squaw Creek. All dump into the Tongue, and
3 there's a total of about 680 square miles of
4 drainage drains into the Tongue River north of our
5 Twelve Mile Diversion Dam.

6 And so a lot of the poor quality water
7 that is attributed to irrigation and return flows
8 of T&Y into the Tongue, and I'm saying that's not
9 the case. It is this land that come -- If any of
10 you are familiar with the land south of Miles
11 City, there is some really heavy gumbo clay soils
12 with all kinds of bad constituents in these soils
13 that drain in there.

14 And Pumpkin Creek goes clear past
15 Ashland and Broadus to the south, so it drains a
16 lot of land, and that's the result of it, and
17 that's why this is significant, because at this
18 time, this date frame, T&Y, the canal isn't on, so
19 return flow is minimal to none.

20 This is a discharge in cubic feet per
21 minute at Miles City. The medium roughly is those
22 triangles for the last 60, 80 years, and that's
23 what the flow is now. It is up significantly.

24 Now we're backing up the river to the
25 dam. We're twelve miles south of Miles City on

1 the highway miles, and it is about 18 miles river.
2 And of course, you can see the terrific and
3 erratic up and downs in it.

4 This is at the dam. Our water quality
5 station is just about four or five miles up river
6 from the diversion dam. This is what the flow is.

7 This is at the Birney Day School up
8 Birney, Montana, and this is the data for there,
9 and the dates, and of course, that's how erratic.
10 It goes up and down. Of course, the flow regimes
11 are determined, or how the salts is, because as it
12 moves it downstream, when the flow is picked up,
13 it takes more of it out of there as it drops, and
14 it falls off.

15 MS. BUCKIN-SANCHEZ: Roger, why do you
16 think the shape of the peaks is different in the
17 different --

18 MR. MUGGLI: It is the event, the water
19 event at lower flows has a tendency --

20 MS. SANCHEZ: -- to mix, more mixed?

21 MR. MUGGLI: Yes, and then the front of
22 it hits, and then a short period after that, it
23 washes these salts downstream, and then it starts
24 to fall.

25 The thing is lot of this stuff happens,

1 or occurrences happen, but not to that degree.
2 What the problem with CBM discharge is that it
3 just makes the problem -- exacerbates it.

4 And one comment that stuck with me a
5 long, long time. I listened to a conversation my
6 dad and my grandfather -- now, that's a long time
7 ago, because Grampa died in 1967 -- and the
8 conversation was based on, "I wonder how long
9 we're going to be able to irrigate this land with
10 this clay soil type that we have, and how erratic
11 the soil is in places?" In three feet, it can go
12 from the worst clay you ever saw to quite
13 moderate.

14 And their concern was that if anything
15 happens, or anything changes in flow regime, or
16 the weather patterns change -- and they had no
17 vision of CBM development -- and we're thinking of
18 these big hills southeast of Miles City, or south
19 of Miles City, that drain in there. "Is that
20 going to change the water significantly enough
21 that we're going to be not able to irrigate this
22 clay soil anymore?"

23 My point is that what's happened is that
24 it could be a very incremental amount from the
25 sodium bicarbonate in this well water that enters

1 the river. My whole point is it's not what the
2 river, and not what the water can hold, and stand,
3 and change it, it is the use of the water. When
4 you irrigate this soils, you irrigate these
5 fields, and these fields go from loam type soil to
6 a clay in a very quick order, then you have these
7 problems, and then you have these problems of soil
8 sealing. And it isn't --

9 The problem itself is relative to air
10 and water movement. Once you look over this clay
11 soil, then there is no longer air goes to the
12 roots, and we have this slicked over soil because
13 we have this elevated EC and SAR on these soils,
14 so therefore the plants start dying, or they don't
15 do nearly as well.

16 This is one at Tongue River Dam near
17 Decker, and that's what we're looking at for now
18 -- Why the sharp change, I'm not sure, but that's
19 what the reading is, and it is very high. Before
20 the days of CBM, CBM in Montana and Wyoming -- and
21 it is a bigger issue with Wyoming, but we can't
22 hardly say much to Wyoming if we're doing it north
23 of the border. That's one of the big huge
24 problems, and that's how Wyoming uses its wells.
25 "You guys are discharging down there, so clean up

1 your own act first, and then you can talk to us."

2 Well, with clay soils, it's all relative
3 to the soil. It absolutely is where it's at, and
4 it is where the problem just hits, and in tonnage,
5 and the whole bit, on alfalfa.

6 This is the 71 year average on those
7 days, is what it amounts to on the Tongue River at
8 Decker.

9 And then you get these kind of peaks,
10 and we used to didn't have those when you have
11 these kind of peaks to that degree. It was more
12 of a flattened off number, was more level, didn't
13 have that kind of result.

14 This is Hanging Woman, and of course,
15 that's how drastically that thing can change. And
16 the EC is just off the charts, whereas if you
17 discharge CBM water, then you have that kind of
18 numbers, and it's way up in those volumes. And of
19 course, the volume is what negatively effects the
20 river. Of course, before the CBM discharges, if
21 we had one to one and a half cubic foot per second
22 coming out of the mouth of Hanging Woman, it was
23 one thing; but now if you have four or five and
24 these kind of elevations, then it's a real issue,
25 and it makes it --

1 That's fairly explanatory in itself.
2 That's cubic feet per second, and that's where we
3 get into what I was just stating, that we get
4 flows like that, that high, and then the water
5 quality is an issue on the effect on the Tongue.

6 And here is on our fields of clay soil,
7 and this picture, this is the flat area, and this
8 is a border dike, dark green, much better growth.
9 This is another 100 foot, another dike, and so on.
10 When the dikes, of course, are made out of the
11 same material as the rest of field is. When you
12 start --

13 This field is suffering from sodic
14 collapse, and it is a high clay content in the
15 soil. It's probably that 80 or 90 percent. You
16 look at it and you think, "Jesus, why are we even
17 farming this? You can twist your ankle when it
18 dries out, the cracks are so big." And it's what
19 we're blessed with, and it's what there is there,
20 and it can change very rapidly, the soils.

21 There's what it looks like, a close up
22 after the event, after it started to finally dry
23 out, but it was there long enough that it created
24 this slick stuff, this slick ground. And you just
25 could not even walk on it, it was so slimy and

1 slippery, and when it's like that, it's real
2 cemented together, so the drying time is
3 increased. It was just like a --

4 OPERATOR: Mike Wendland is leaving the
5 meeting.

6 MR. MUGGLI: This clay, it just can't
7 move air, eventually water through it, and then of
8 course the roots start rotting off, and you get
9 this yellowing and then dying of the plants.
10 That's what happens.

11 And this is that same field. That
12 picture, the previous one, was right in this area
13 right here. And that's how quick this clay, this
14 montmorilonitic clay, go from 80 to 90 percent.
15 We have Lake Glendive in the last ice age to blame
16 for that. It really made the soils in our area
17 convoluted, because it was the shore of Lake
18 Glendive.

19 So you have this strange bizarre soil
20 that is really segregated. And this is like one
21 step from there to there, and you're looking at
22 alfalfa that's that tall, versus much shorter, of
23 course. But in this case, why it's so obvious is
24 because we have this sodic collapse on this
25 montmorilonitic clay.

1 And that's a close-up of the same
2 problem.

3 There you have the -- As always, border
4 dikes are difficult to get a stand on, because
5 these dikes are probably a foot high, and these
6 fields are terrace level, because we have this
7 poor quality soil, so we don't level the fields as
8 a pool table, as a terrace level. This here is
9 level going across here, and you hit the dikes,
10 and it goes up and it drops, then it comes a few
11 tenths below this flat area here. So there is
12 basically a terrace leveled system that we've got
13 on our fields.

14 And of course, we didn't get a stand on
15 the dikes in this particular spot because we
16 didn't get water, and we didn't get rain when we
17 planted it, but this green area was less impacted
18 by the water, and didn't get up -- this is just
19 high enough that it didn't get up, seeped over to
20 irrigate the plant below the surface, and that's
21 why you have this green and much better quality
22 plants, and you can see it all the way across the
23 field, the green border dikes.

24 And there it is again. That is a real
25 bad spot. And what do you do with it? Alfalfa

1 plants are toxic to themselves. You have a
2 difficult time to go in and replant and ever get
3 it to come up. The plants will sprout, and then
4 they'll die. And just the only way you deal with
5 this is you determine how many tons you're
6 satisfied with taking off of this decrepit,
7 damaged sand, and then you go in there how many
8 years they survive, and then you take it out of
9 production, and go back, move back into the
10 rotation.

11 And that's a close up of more of the
12 same.

13 And you can really see the border dikes
14 in this frame, the back and forth in this is
15 pretty much across that whole devastated area in
16 that field.

17 This is our yield. Now, you have these
18 ups and downs at any given time. Now, how that
19 those numbers are arrived at is the haying system
20 that we had, we couldn't weigh the stacks, so we
21 put in hay buster stacks 18 feet in diameter, and
22 the machine is real tall, so we had no way of
23 weighing them.

24 But we take our production. We market
25 all of our alfalfa and grain products through our

1 pellet plant, so the amount of hay you have, based
2 on how many acres we have in, is what it did for
3 that particular year. You don't come to that
4 number until the following spring because all of
5 the product goes off the farm over a scale.

6 So you get this ups and downs, and you
7 can see on these field size, you don't keep the
8 same exact amount of hay in production. You tear
9 up the whole field, whether it's 20 acres or 140
10 acres, and so you can have some fluctuations, and
11 that's probably what something like this
12 represents right in here. A bigger field is tore
13 up in there, created a drop, and then another
14 field came back into production, and start pulling
15 itself back up.

16 Well, as the years went on, we started
17 this decline, and we've got down to there. This
18 here, my brother can do this stuff, but he wasn't
19 available to get the years before that. But we
20 were up. At one time, we were dancing around,
21 just like this, only it was a seven. And our
22 farming practices have improved, and yet we're
23 still plagued with this.

24 This slide here, this frame, is what it
25 costs us. Our annual loss on that four point

1 something tons is about an 1,800 ton loss, and
2 we're having to replace that hay to go into our
3 feed plant, and it's about \$125 a ton, so about a
4 \$226,000 loss on hay production every year at that
5 four something ton range.

6 And we've tried everything under the
7 sun. We've bought \$95,000 worth of new equipment,
8 two implements, a disc ripper that was like
9 \$48,000; a roller harrow to try to break the lumps
10 up, a big one that did -- The disc ripper is only
11 16 feet wide. To deal with this collapsed soil
12 and the rate of horsepower that it takes to pull
13 an implement through there, we've had to put two
14 tractors on it, so we're looking at close to 600
15 horse on the front of a 16 foot implement, which
16 is laughable, it is just unbelievable. And of
17 course the costs of running two tractors, the
18 fuel, and two operators, and the problems go on
19 and on.

20 And then I'm going to move into the fish
21 passage, fish passage on this -- This is the
22 inlet, and you recognize that gentleman there.
23 That's the Governor, and that's myself. That was
24 on the opening day of the fish passage, and he
25 came over, and opened one gate, and I opened the

1 other one, and that basically allowed the fish to
2 get past the Tongue and Yellowstone Diversion Dam
3 that had been blocked since 1886.

4 And that's the channel just below the
5 gate is right up here. And this is Class 1
6 riprap. Dug the channel, put the dike, and it
7 makes a curve, and goes back into the river below
8 our diversion dam, and now the fish can travel up
9 this stream, and enter back into the Tongue River,
10 and go south, where they weren't able to go since
11 1886.

12 And the boulders are weir boulders.
13 This thing was hugely problematic to get it here.
14 Those rocks and the Class 1 riprap doesn't look
15 like anything in the Miles City area. All of the
16 rock in the Miles City area, except the granite
17 that's moved down the river, is small size gravel,
18 and is not weather proof. So we spent \$120,000 on
19 rocks and Class 1 riprap to line this thing with,
20 and it came from the western part of the state,
21 but we had to do it because we don't want these
22 rocks to melt, like silt stone will. And then we
23 did all this for virtually nothing.

24 This is what the diversion dam looks
25 like looking south almost, southwest, and this is

1 where the fish enter the fish bypass channel, and
2 go on up there to the head gate or the control
3 gates, back into the river.

4 This is the inlet, and I don't know why
5 I couldn't get my other pictures, and my brother
6 couldn't get them on there. I can't do these,
7 make Power Points, but my brother can, and other
8 folks, but I'm not quite there yet. But anyway, I
9 would have liked to have a picture of the rest of
10 it.

11 This is the new structure. We put in
12 trash racks there. There is a sand line. The
13 sheet piling wall is cut out, and goes under the
14 water to the other side, so it creates a barrier
15 wall that the water has to flow over the top of
16 it, and it inadvertently takes the silt, and
17 doesn't let it over that wall. It goes through
18 this head gate right here, and bypasses it through
19 a pipeline to the lower side of the diversion dam.

20 And then back down here, just starting
21 about right there, there is 90 feet -- this is
22 about 120 feet long, this big huge concrete
23 trough. There's a louver system that goes from
24 the left side to the right side. And it's like if
25 you took that venetian blind and stretched it out,

1 put it on edge, only the gap would be an inch, and
2 the blind things would be two and a half inches
3 wide, with an inch gap in it, and it creates a
4 little back board 90 feet long, and the fish, it
5 scares them away. They crowd to the other side,
6 and they move down as the water way, and are
7 bypassed into the river below the --

8 I guess that's all. I wanted to have
9 other pictures on there, but it's really pretty
10 cool. The sand line, I had one on there that
11 showed the sand line discharging into the river
12 below the dam, and then the fish bypass channel
13 that bypasses the fish back into the river.
14 Anyway, that's where we're at.

15 CHAIRMAN TYLER: Thank, you Roger.
16 Questions? Comments?

17 MR. SELCH: Roger, Trevor Selch. I was
18 just looking at some of your conductivity
19 measurements, and I understand, I think the most
20 critical thing is to try and link any kind of
21 discharge with an increase in conductivity. I
22 know we did a bunch of bicarbonate experiments,
23 and that can obviously be somewhat related with
24 conductivity.

25 Just because they're natural prairie

1 streams, the background levels are going to be
2 fairly high, and if you have any kind of a rain
3 event that will pulse up that conductivity fairly
4 rapidly, and so I think it's hard to -- that's
5 going to be the hardest challenge is to try and
6 tease out what's not and that --

7 MR. MUGGLI: That's right. You're
8 absolutely right. My stance on it is we can carve
9 these numbers, how we decide, and the Board of
10 Environmental Review -- And as all of you know, we
11 had all these meetings until we were blue in the
12 face, and through it all, it became a play as to,
13 "What are you guys as irrigators willing to allow
14 into the river?" And the other side is, "What are
15 we going to get to be able to discharge to the
16 river?"

17 The field, you know, the field you saw
18 in there with the odd lines across it, we never
19 stopped to take and see what is it going to take
20 on a field with that type of montmorillonitic clay.
21 It was all a numbers game. Someone needed to take
22 that same soil and say, "This is how much water we
23 can stand." She's right on the threshold.

24 It was like back to the conversation my
25 dad and my grandfather had. How much bad water

1 can we take before we start seeing this clay soil
2 go plumb to heck on us? How are we going to do
3 this?

4 We have an interesting field that we
5 have further over east of the field that I showed
6 you that had the odd lines across it. It would be
7 about half a mile, three-quarters of a mile to the
8 east. We used to farm it, and we used to farm it
9 with terraced dikes because the soil was so poor
10 that we had very little top soil to deal with. So
11 we decided that instead of having straight line
12 100 foot borders, we had these terraces based on
13 the contour of the land.

14 And it was 168 acres in this farm. And
15 so we started irrigating it, and we noticed that
16 if we irrigated, ran into these dikes, and we had
17 drains in them and all that, we could make this
18 work. But if you got it when the river was low,
19 the only time you could irrigate it was when the
20 river was high, and then it started dropping, and
21 it takes 24 hours to get the water from the top
22 end down to where the head gate out of the canal
23 is. Then we would irrigate this field, and it
24 would be -- After you'd wait a long enough time,
25 until this water passed in the canal, then you

1 could get by irrigating.

2 So then we decided let's see what
3 happens, and we'll just irrigate it when we think
4 it's dry, so we started doing that, and it's just
5 clay from hell. It's just absolutely awful stuff.
6 Then we started seeing it collapse. And it was
7 just such a monumental mess, we just gave it up.
8 We quit doing it, quit farming it.

9 Some of you are thinking, "Why don't you
10 guys just stop farming where you're at entirely?"
11 That's probably what we should have done forty or
12 fifty years ago, but having an operation like ours
13 that involves a 20,000 ton a year feed processing
14 plant -- and I think we're probably almost the
15 largest feed processor in the state. Our farm is
16 there. All of our production, grain production
17 goes through this feed plant. We buy a lot more
18 hay and a lot more grain products.

19 And you just can't -- it isn't like
20 selling your house and moving on. It just isn't.
21 And where we're going to go, I dare say. But the
22 bottom line is that we can't incrementally, with
23 this soil the way it is, and that's where the
24 whole flaw in this is we couldn't -- we shouldn't
25 have never dealt away good quality water, not

1 knowing how much of this water 80 percent
2 montmorillonitic clay would tolerate.

3 That's where the problem came, and we
4 found that out in the worst sort of way, that it
5 was a very small amount, because you're looking at
6 an SAR of maybe a point and a half, is all you
7 are. The water that's discharged in Montana is
8 like an SAR of 60. Well, it doesn't take much of
9 that water to start raising it incrementally, and
10 that is what's got us into trouble. That really
11 is.

12 And the thing of it is, you need to know
13 that our operation -- we don't live in a tent by
14 the river with no electricity. Our electrical
15 bill in that feed plant -- so we're not hard core
16 environmentalists -- but our electrical bill in
17 our feed plant could be \$12,000, \$13,000 a month
18 to run this, because we're taking about 900 horse
19 off the grid. Well, that's a lot of money.

20 Then we have diesel fuel for our trucks,
21 for our delivery service. One truck can burn
22 \$10,000 worth of fuel a month, and we've got five
23 trucks.

24 So I want folks to know I'm not some
25 wacko, what we'd call "greeny" that doesn't want

1 any development. I'm just begging everybody.
2 Let's not throw the baby out with the bath water.
3 It is as simple as that. Our parameters for
4 what's going on are not good enough. We need to
5 not -- like grandpa and my dad said. "How much
6 bad water can we take in this thing?" They didn't
7 even know. They were dead a long time before CBM
8 came along. "How much bad water can we take?
9 What can happen here that will put us out of
10 business with that terrible crappy soil we have?"

11 MR. SALLEY: What's the standard
12 treatment for the CBM, for the water? How do you
13 treat it?

14 MR. MUGGLI: Well, my favorite is one
15 thing, one word: Reinjection. And then you save
16 the aquifer. You keep it intact. The ranching
17 community isn't going to worry about wells going
18 dry. The industry talks about the recharge this
19 and that. I'm just saying if you put the water
20 back down in these wells, we don't have to worry
21 about any of that.

22 That's a huge problem for our operation.
23 What if all of a sudden these ranches decide they
24 don't have enough water in these wells in places?
25 Maybe they collapse some place. The strata goes

1 to heck. A lot of these people were selling feed
2 over there. So then where does my business go
3 there from a practical standpoint? So there is
4 all these domino theory things that can happen to
5 us as a result of our poor decision to allow the
6 wasting of this water.

7 CHAIRMAN TYLER: I have a question,
8 Roger. Do you rotate through small grains?

9 MR. MUGGLI: Yes.

10 CHAIRMAN TYLER: What do the oats look
11 like?

12 MR. MUGGLI: I'm glad you mentioned
13 that. We rotate with barley. We went to barley
14 primarily because it will stand -- it's more salt
15 tolerant than anything else that you can rotate
16 with, which is oats, or wheat. Barley is it.
17 Barley stands the most sodic water.

18 And we had -- believe it or not on this
19 crappy soil, we have from 95 to 110 bushel average
20 on barley. And now last year, on several
21 different fields, our barley was 45 bushels. And
22 we had a very mild year. It wasn't too hot. We
23 got it in early. We just can't make it work. We
24 just cannot make it work.

25 So one of the things that we've done --

1 and see, this is the thing about it. The book
2 part of all this is that barley is the one that
3 you should be able to rotate with, according to
4 all the smart people, that it is the most salt
5 tolerant. So we went, jumped in there last year,
6 and planted corn, because we're running low on
7 organic matter in this clay soil. So the best way
8 to get organic matter in there is grow it.

9 How do you grow it? You plant field
10 corn on it, and then harvest it, and we can use
11 the field to -- harvest the corn for our feed
12 plant on three-eighths horse calf pellet, and put
13 all of the stalks back in the ground, work them
14 into that clay soil, so you start to increase that
15 percolation. So you move that percolation on down
16 there. And we're sort of out to lunch on it yet.

17 But here is the bizarre thing about it,
18 is on these fields, we did two fields, 103 fields,
19 120 acres, and this corn -- this is just shocking
20 -- made around 205 bushels to the acre. It was
21 just staggering. But you could see it. It was so
22 strange to look at that soil out there and see
23 that when it goes into these bad spots, how that
24 corn plants reacted, but it was by the virtue of
25 the brace roots would start going into the ground,

1 and it would literally fracture that ground.

2 So corn isn't supposed to be something
3 that you can raise when you have this kind of
4 soil, and you have this water impact, so go
5 figure. But anyway, our upside is that hopefully
6 we can put all these stalks back into the ground,
7 and get it tilled in with all these fancy new
8 tillage equipment we have, and increase our
9 percolation, so we can move this sodic event down
10 out of the root profile.

11 CHAIRMAN TYLER: Other questions for
12 Roger?

13 (No response)

14 CHAIRMAN TYLER: Thank you, Roger.
15 Shall we take a lunch break.

16 (Lunch recess taken)

17 CHAIRMAN TYLER: We're at 15 after. We
18 said we'd restart. Let's call the meeting back to
19 order. We do have a quorum. Staff asked if they
20 could maybe make a couple comments based on
21 Roger's testimony prior to Hydrosolutions'
22 presentation. Bob, do you want to give us a quick
23 update.

24 MR. BUKANTIS: I just felt like we
25 needed to address a couple things, Roger, just to

1 clarify a couple issues, and I think I'll just try
2 to explain the basics of water quality standards
3 just real briefly a little bit.

4 Because like, for example, on the Tongue
5 River, we've got water quality standards that are
6 set at the level necessary, or what was deemed
7 necessary to protect the designated uses. And
8 when you see those standards that are sometimes
9 exceeded in the stream, that doesn't necessarily
10 trigger an enforcement action because sometimes
11 they may be exceeded naturally.

12 And in the case of the Tongue River, for
13 example, we know that sometimes those standards
14 are exceeded down at the lower end of the river;
15 but I'd say our information is showing us that
16 Fidelity, for example, is in compliance with their
17 permit limits, and we're not seeing the standards
18 being exceeded at the border. So we don't see any
19 opportunity or any duty, if you would, to perform
20 an enforcement action there unless we can see
21 something to go after, because an exceedence in
22 the surface water doesn't trigger a duty to go
23 after an enforcement action. So I just wanted to
24 clarify that.

25 And the other thing is part of the

1 standards, if you would, is the nondeg numbers,
2 but those nondeg numbers are really not meant to
3 be numbers that you use to evaluate surface
4 waters. Those are numbers that we use when we're
5 setting permit limits to protect high quality
6 water that exists in the Tongue, particularly the
7 upper end of the Tongue River, and so there is no
8 enforcement trigger there either.

9 And actually that kind of begs the
10 question a little bit about the TMDL, because
11 generally we write -- well, I'd say more than
12 generally, especially given the workload in this
13 Department. We always write TMDL's for waters
14 that are impaired.

15 So if you look at the Tongue,
16 particularly the upper end of the Tongue, that
17 water is in pretty good shape, and that's why we
18 used those anti-degradation numbers and permits to
19 protect that high quality water, but there is no
20 need to write a TMDL for that water.

21 So I just wanted to clarify those
22 points, just to try to get our position straight
23 on the record on that, and then just perhaps pass
24 it to Jenny to address some of the permitting
25 issues.

1 MS. CHAMBERS: Jenny Chambers. Just
2 really quick, I just want to clarify that Roger
3 indicated that methane wastewater is considered a
4 pollutant under the Clean Water Act. Any
5 discharge of waste water is a pollutant under the
6 Clean Water Act. You can't discharge to surface
7 water without permit coverage.

8 An MPDES permit is basically the ability
9 to discharge a certain level of pollution. That's
10 the point of a discharge permit, is authorizing
11 the discharge of a wastewater. So in my mind,
12 it's always been considered a pollutant just
13 similar to a POTW, a Public Owned Treatment Works,
14 as a waste water, and there is a certain amount of
15 pollutants in it, and then the permit limit is
16 protective of the use.

17 So there is two different requirements.
18 We first establish technology based effluent
19 limits, or TBELs. In this case for coal bed
20 methane, we use the BPJ method, and the treatment
21 that they actually have at Fidelity is an ion
22 exchange, and that's looking at the best available
23 control technology using the BPJ method that also
24 brings in economics and cost, so what's
25 economically feasible based upon the operations,

1 what level of treatment is the best that they
2 could achieve.

3 We looked at other treatment options as
4 well: Reverse osmosis; reinjection, like Roger
5 mentions; a whole slew of different options that
6 were available; and ion exchange Higgins Loop was
7 the most cost effective or economical, best
8 available treatment for that industry that
9 consistently can meet a certain level of
10 performance.

11 So it takes that analysis, and establish
12 technology based effluent limits, and then when
13 those aren't stringent enough to be protective of
14 the uses, we also then look at water quality
15 standards, look at reasonable potential for the
16 discharge, see if any of those -- any of their
17 discharge constituents would exceed water quality
18 standards, and then we apply the most stringent,
19 and that's the permit limit they have to meet.

20 So it's kind of a two fold process:
21 Treatment, performance, and then what's the water
22 quality standards from Bob's shop, and then we
23 apply a number to be protective of that.

24 Like Bob indicated, TMDLs. At some
25 point we have to look at is there also a TMDL

1 based upon establishing permit limits? Has there
2 already been established waste water allocation
3 that that stream can hold in order to make that
4 impairment no longer impaired.

5 And the Tongue River where Fidelity
6 discharges is high quality water, so there's no
7 impairment, so we're just trying to hold that so
8 it doesn't become impaired. If the Powder is
9 impaired, if there is any coal bed methane
10 discharge on the Powder, then it would be
11 beneficial to have a TMDL like Roger indicated so
12 that we would know in the permit shop at least
13 what that load allocation should be.

14 The other note that was mentioned was
15 nondegradation. Why did the permit not establish
16 nondeg in the renewal of that reissuance of that
17 permit? We did in the previous permits, and this
18 is a reissuance of that permit at Fidelity, did
19 not have a new or increased source or increased
20 load, and so therefore we didn't take a stringent
21 number below what they are already at. Nondeg
22 applies to newer increased sources that discharge
23 to high quality waters.

24 So those are kind of the high level
25 notes, and there was other stuff on there that

1 referenced Department and different actions. So
2 we'd be happy to answer any questions if there is
3 additional clarification that needs to be done on
4 any other topics.

5 CHAIRMAN TYLER: Thank you, Jenny. So
6 it's time for the Hydrosolutions Tongue River
7 information program, except is Tom or Neal going
8 to lead this?

9 MR. OSBORNE: I'll do an intro, and then
10 Neal will take over.

11 Chairman Tyler, ladies and gentlemen,
12 thank you for having us here for this
13 presentation. My name is Tom Osborne. I'm
14 President of Hydrosolutions, Inc. we're a small
15 hydrological and environmental consulting
16 business. I'm in Billings, and we also have a
17 Helena office.

18 So I started my career in 1976 doing
19 coal hydrology in southeastern Montana, and so a
20 little math will indicate that I'm kind of getting
21 to be an old guy in this business, 35 years
22 experience in the state of Montana doing water
23 quality and hydrology studies. So one way or
24 another, I've probably always been involved in the
25 water quality and hydrology of coal related

1 projects in Montana, so this is kind of a
2 continuation of that.

3 This study is an excellent demonstration
4 of commitment by the State of Montana to conduct a
5 long term research study of water quality and
6 hydrology in the Tongue River that is enabling the
7 continued co-existence of two very critical
8 industries in the state, and that being
9 agriculture and energy, and I guess that's how I
10 see the contribution that this project is making.
11 And I will conduct the hydrology portion of it,
12 but we usually lead it off with Neal Fehringer, a
13 certified professional agronomist, who is going to
14 talk to you about the crops and the soils aspect
15 of this study. So Neal.

16 MR. FEHRINGER: Thanks, Tom. A little
17 bit about myself. I grew up on a farm in
18 northeast Colorado. My brothers still farm. And
19 I started my business 30 years ago this year. I
20 have been, as Tom mentioned, I'm a certified
21 professional agronomist with the American Society
22 of Agronomy. I'm also a certified crop advisor.
23 I work with a number of farmers, mostly in south
24 central and southeastern Montana, on crop
25 production; do expert witness work.

1 And what I've found in expert witness
2 work is sometimes we look at a situation and try
3 to figure out what is the cause, and quantify it.
4 Roger alluded to the most obvious animal. Well,
5 sometimes what I have to do as a scientist is look
6 at all the animals, and see what is the cause.

7 For instance a number of years ago, a
8 farmer at Circle had me come out because he wanted
9 me to evaluate a case where he said 2,4-D was
10 causing injury to -- or reduced the stands. He
11 just knew for certain that the 2,4-D he put on
12 before he planted the barley caused stand loss.
13 Well, in my evaluation that day on his property,
14 it came to be where he banded too much urea
15 fertilizer with the seed on wide row spacing.

16 So as a scientist, we have to go in and
17 look at all of the animals, and then let the data
18 speak for itself. And so today, we're going to
19 present this data. Originally you can see the
20 logo up there, AMPP, stands for Agronomic
21 Monitoring and Production Program. It began in
22 the fall of 2003 with myself and two soil
23 scientists. So I have been involved since 2003.
24 And it came out of the concerns that Roger has and
25 some other people.

1 I'm not going to read the slides. I
2 assume you guys can read them. We're going to get
3 to 30 slides in a little bit of time here, so Tom
4 still has time.

5 Roger showed some data today from USGS,
6 so they've been studying the waters, more --
7 stepped up the studying of the water, particularly
8 once the CBM water started going into the Tongue
9 River, which began in 1999, but there was nothing
10 for soils and crops, and so that's where this came
11 out of.

12 We have 13 cooperators in the program at
13 this point in time that irrigate with water out of
14 the Tongue River. So we did baseline sampling,
15 fall of 2003, soil sampling, to identify a whole
16 host of things, so we're going to discuss some of
17 those today. Ideally if we had gotten started in
18 1999, that would have been the true baseline, but
19 this is where we're beginning. And what we've
20 done is by soil sampling every year, and taking
21 forage harvests every year, we are able to look at
22 trends, and then are trends occurring out there.
23 So then we've done it on an annual basis in a
24 systematic way.

25 My two soil scientist, Kevin Harvey, and

1 Bill Shafer, and myself designed this program in a
2 matter of ten months. For full disclosure,
3 Fidelity Exploration and Production provided the
4 money for three years to run the program. We had
5 total control. It was a matter of -- we would
6 have liked to have State funding right from the
7 beginning, but that would have taken a couple more
8 years to get the funding, and etc. So they funded
9 it through October of 2006, and now we're funded
10 by the Montana Board of Oil and Gas, which is an
11 agency of the DNRC.

12 The program has not changed other than
13 we added a hydrology portion in October 2006, and
14 so who pays this is the same, but we're doing
15 exactly the same science as we did from the
16 beginning.

17 Because it was funded by Fidelity at the
18 beginning, we put out a sampling and analysis
19 plan, as it's called; sent it to a number of
20 agency personnel, like people from Montana
21 Salinity Control Association, NRCS, experiment
22 station superintendents, retired NRCS soil
23 scientists, and they gave us some feedback. And
24 if we had been -- we wanted everything above the
25 board. Nothing -- Everything has been available.

1 And I'll explain to you how we handle
2 the soil samples, that they're put on the website
3 before we ever see them, and that's been from the
4 beginning. But we did get a couple good comments
5 back, and one of them was: Have a couple fields
6 outside the Tongue River drainage as benchmarks.
7 And I said, the data is available via the web.

8 There are three facets to this program.
9 Agronomic sampling. Those were kind of courtesy
10 samples to our cooperators. We go just zero to
11 six and six to 24 inches. So soil sampling, just
12 what you would normally do for fertilizer
13 recommendations.

14 Today we're going to focus on Tier 2,
15 and the Tier 3, where we've got much more in-depth
16 sampling in Tier 2. In Tier 3 is we have a place
17 on a half acre. We've got 48 replications of
18 testing different waters. And I'll explain that
19 when we get to it. But it's what's called a
20 complete -- a random complete block study using
21 two different crops and four different waters.

22 So we start out with 14 locations along
23 the Tongue River drainage, within the Tongue River
24 drainage. We had two outside of the Tongue River
25 drainage. Two of the 14 were dry land areas. We

1 wanted to see what it was, what conditions existed
2 in soils that had not been irrigated.

3 In Tier 2 we sampled to eight feet
4 instead of two. The sampling points are -- we
5 have GPS way points ten to twelve in each field,
6 and I'll show you a map that shows that. In the
7 Tier 2, we also added exchangeable sodium
8 percentage, which is ESP, and clay mineralogy.

9 So Roger brought up the thing about the
10 mineralogy of the types of clays. There is
11 basically three types of clays. One is
12 montmorillonite smectite, as Roger referred to, the
13 high shrink soil clay; there is kaolinite, and
14 illite. Kaolinite and illite are not high shrink
15 swell clays, so the sodium doesn't affect them as
16 much.

17 This is the distribution of our
18 cooperators. We started at the state line. We've
19 got three above the reservoir. There is the
20 reservoir. Then we've got two between Birney and
21 Ashland. The "D" stands for dry land. We've got
22 a site there. We've got one in Ashland, one at
23 the Brandenburg Bridge, halfway between the
24 Brandenburg Bridge and the Twelve Mile Dam. This
25 is at about mile eleven, BA is; BC is two miles

1 south of Miles City; then YAA is northeast of
2 Miles City, so it's near the end of the T&Y Ditch.

3 We've got a reference field. That's the
4 R's, one at Fort Keough, and then we've got one at
5 Hardin as well. And so Fort Keough takes its
6 water out of the Yellowstone before the Tongue
7 drops in. Of course, the BHA one takes their
8 water out of the Bighorn. So no CBM water in
9 there.

10 This is our GA site and GB, so this is
11 irrigated, and the blue lines delineate between
12 soils mapping units. All our points, we took the
13 major soils mapping unit from NRCS publications.
14 We stayed within that one map, and the side row
15 goes up here as well. But here are locations. We
16 did a soil pit right here where the red is at, and
17 then we've got it distributed throughout.

18 Then we took -- This is the same soils
19 mapping. As you can see, this is range land over
20 here, so we wanted to see what it was. And what
21 we found, the major thing, soil characteristic,
22 was the salts were much higher here closer to the
23 surface than here where it's been irrigated for a
24 number of years. They moved the salts lower. So
25 irrigation in itself has made changes.

1 We want a paper trail. This is a form I
2 designed. It's essentially the soil sampling
3 information. So every fall before we soil sample,
4 I ask -- This is general information up here about
5 which irrigation water source it is, and do you
6 have any problems. This is -- Like for instance
7 last fall for 2010, I filled out this section. I
8 wanted to know what crop was in there, what they
9 thought it yielded; seeding dates, if they had
10 seeded it; did they soil test.

11 And of course our cooperators soil
12 tested anyway because we've been taking the soil
13 tests. They put on fertilizer amendments,
14 herbicides, insecticides. It's a full agronomic
15 screening, is what it is. How much water they put
16 on, when they started the pivot, when they ended.
17 We wanted to how many inches they applied
18 throughout the year. And then we do a little -- I
19 do some planning with them.

20 The key to this form is I sign it as the
21 agronomist, and I have the grower sign. So I can
22 take this information. They've acknowledged to me
23 that this information is true and accurate. And
24 so then I give them two copies -- these are three
25 part forms, and I keep the one they have signed,

1 and so I've done this each fall -- that I'm not
2 making up information on myself for putting on
3 summary sheets.

4 Every time when the field, whether it
5 for crop harvest or soil sampling, I fill out one
6 of these, so this is just general crop condition
7 that's out there. I am the one that signs it only
8 because I'm the one making observations. I could
9 make recommendations on here, such as weed
10 control, insect control, disease control, when
11 they need to start the irrigation. This is what I
12 do normally in my consulting business when I work
13 with farmers. So say what the crop condition is,
14 if there is any problems out there.

15 So we've sampled fall of 2003, spring
16 and fall 2004, and then fall of 2005 through 2010.
17 We did the sampling the next spring after we
18 started the program, but we found it wasn't
19 necessary, it was just extra cost, so we quit
20 doing that in the spring. So we've had nine
21 sampling events since 2003.

22 We've taken almost 900 soil samples in
23 that period of time and, they're all -- And those
24 GPS way points, we go back in to soil sample, we
25 take and go back to those sites; and I generally

1 would go to the field, I will then relocate those
2 GPS points, put a flag in. They came and soil
3 sample those spots. And there will be -- If a
4 field hasn't been worked, such as perennial hay,
5 I've been able to relocate probably three out of
6 ten really easily in those points, so where we're
7 real close to our old points.

8 Clay percentage, I'll show a slide of
9 that; salinity and leaching fraction, we'll see
10 that; and sodicity and permeability, I'll talk
11 about that.

12 Here is our first site, which is MA. We
13 gave them an Alpha name, because this was
14 contentious enough when we started the program, to
15 protect the innocence -- or to protect the
16 innocence of the cooperators. We didn't want them
17 getting something from the Ted Kaczynski mail
18 order catalogue via some people that didn't want
19 them to be cooperating.

20 So this is MA, and this one down here is
21 YAA, which is beyond Miles City. There is 157
22 river miles from essentially state line to where
23 the Tongue River drops into the river, into the
24 Yellowstone River. So here is the percent clays
25 as you go down the river, and this is our trend

1 line.

2 So this is the site that is two miles
3 south of Miles City. It has got 43 percent clay.
4 And we've got -- So essentially a lot of the soils
5 that are within the Tongue River drainage are
6 considered loams. We increased about 3 percent
7 from the top to the bottom, so it is -- There are
8 out in Roger's neighborhood -- which this
9 gentleman is beyond where Roger takes water out
10 for his field -- it can be really heavy clay. So
11 his particular site is not.

12 But the one that's got 40 some percent
13 clay is there. What we found is the higher the
14 clay, the lower the percentage of the
15 montmorillonite. So if you had the one that had
16 say 45 percent, it had maybe 10 percent of its
17 clays, total clays content, was montmorillonite;
18 but if you take the one that was about 18 percent,
19 then the montmorillonite was much higher, like 25
20 percent. So there seemed to be a kind of
21 consistent montmorillonite content from top to
22 bottom of the drainage where we're studying.

23 So we've seen differences between
24 locations due to management of the soil; we've
25 seen no significant change in the soil EC. SAR

1 and ESP values have varied, and I'll show you some
2 ESP things.

3 SAR and ESP, I'll show you how that is
4 tracked. Very similar. The ESP is sodic soils
5 considered of 15 percent sodium. If the ESP is 15
6 percent or higher it's sodic, whereas SAR it's
7 twelve. So they're very similar numbers. ESP is
8 easier to average, so I like to use the ESP rather
9 than SAR.

10 I'll show you fields that we've kept --
11 Sodium, we've tracked the sodium content from
12 those fields for multiple years, and I'll show you
13 the sodium contents and how they really -- we have
14 not seen any increase. It does vary between
15 crops. Of course, we monitor annually.

16 We had six fields that -- This is EC,
17 and this is inches in depth. So generally the
18 trend was -- This is from spring 2004, but we had
19 six of them where EC increased with depth. Then
20 we had six that maximum EC occurred at about 30
21 inches from the depth. And we had perched water
22 table here, and so it decreased with depth. You
23 couldn't leach it really any deeper than this.

24 Then this is a little bit hard to see
25 because of the colors, but then we had a couple

1 where salinity really didn't increase with depth
2 at all.

3 Here is upper river exchangeable sodium
4 percentage, multiple years. It would be 2003
5 through 2006. You could see it changes. It
6 tracks pretty well, but it does change from year
7 to year.

8 Here is lower exchangeable percentage.
9 This is a site that's eleven miles south of Miles
10 City, and again, it tracks. This one right here
11 is from 2005, and I'll show you on our ESP graph
12 why that one was lowest.

13 Here is average exchangeable percentage
14 all depths. I've split them out into all 14
15 irrigated fields, the ten within the Tongue River
16 drainage, and the two non-Tongue River fields. So
17 as you can see, it varies. The sodium goes in and
18 comes out.

19 In 2004, we reached our peak. It
20 certainly has approached that point. This was
21 2010 data, and I was entering it the other day to
22 get this graph. There may be some issues that we
23 may have to some retesting done by Energy
24 Laboratories.

25 All soil samples that we have taken have

1 been analyzed by Energy Laboratories here in
2 Helena, and there is a strict protocol as far as
3 chain of custody. They get them and then work on
4 them.

5 But this is fall 2004, and then this
6 dropped like a rock, so a significant change in
7 exchangeable sodium percentage. It came from the
8 fact that in the spring of 2005, the Tongue River
9 Reservoir, I believe, was about half full, and it
10 filled within six weeks due to spring
11 precipitation. So we had irrigation water that
12 had higher EC's and SAR's, and ESP's -- or SAR's.
13 You can't read ESP's on water. But we had all
14 that runoff that translated into flushing it out
15 of the system. Then it came back up as we had
16 some more dry years.

17 Tom is going to allude to the -- One
18 thing that wasn't mentioned here earlier was that
19 southeastern Montana had a drought beginning in
20 about 1999 or 2000. So river flows went down,
21 EC's and SAR's went up. It is just the nature of
22 the beast.

23 So right now, we're not where we were in
24 2004. That's the data. We're here to present the
25 data. So whatever it means. But as we continue

1 to do it, we'll continue to lengthen out this
2 graph.

3 Here is this zero to two exchangeable
4 sodium percentage. So Roger talked about how his
5 soils get this dispersion, or collapse, is what it
6 is. Sodium, the old adage is sodium makes water
7 soft. If you have hard water, you add sodium to a
8 softener, and so it makes water soft, but soil
9 hard.

10 Now, if we're getting a sodium
11 accumulation in the soil, it's going to be at the
12 zero to two inches, because it's going to cause
13 that collapse or dispersion of the soil. And so
14 we have been tracking the zero to two ESP. And so
15 you can see that since we started we've actually
16 gone down. These, this primary -- these peaks,
17 this is the non-Tongue River fields. This is due
18 to -- These first two are after plowing sugar
19 beets. Exchangeable sodium percentage in the top
20 two inches just goes way high.

21 Then the next two years is small grains,
22 and this is from the BHA field that's driving
23 this, as average those two together. And they had
24 a lot of rainfall before we soil sampled next in
25 2009 when we had the beets in, so we didn't get

1 that peak. But that's caused by cropping. Not
2 anything to do with CBM, because it's above CBM
3 discharge.

4 Here is ESP, which is the upper line,
5 and SAR, and how they've tracked. So SAR's will
6 have done virtually the same.

7 So that's the soils part. We have not
8 seen really the substantial increase in ESP or SAR
9 that would cause this. This is -- I said the
10 different crops take up a different amount of
11 sodium. Corn always, regardless of what's in the
12 soil, comes in at .02 percent sodium. We had
13 fields that are high, test high in sodium, and it
14 still comes in at .02 percent and low -- fields
15 with low percentage.

16 Grass doesn't -- the species of grass
17 which we have there is brome, orchard grass, don't
18 take up as much sodium as alfalfa does. Hay
19 millet takes up more than that. And of course,
20 Roger talked about barley being salt tolerant.
21 And it takes up more sodium, and yet still
22 produces.

23 This one, I'm going to take a little
24 time here. These in this group are all within the
25 Tongue River drainage. The YBA is Fort Keough, so

1 I separated it off to the side. This is the
2 average sodium contents from the forage. And what
3 the criteria to make this graph was it had to be
4 of the same crop. As you can see it, if I went
5 from grass to barley, and then put it on the
6 thing, my barley content would be really high.

7 At Fort Keough in 2005, they had the
8 field that we were studying in barley, and then
9 they under seeded to alfalfa. So the first
10 harvest we took off was 99 percent plus barley.
11 Then the second harvest we took that year was
12 alfalfa. And the sodium content in that same
13 field, the same year, two different crops, the
14 barley was .57 percent, and this graph starts at
15 .2, so it was over .57 percent; and the alfalfa
16 was at about less than .3. So they had the same
17 water that year, runoff water, and etc., so we
18 have to separate the crops.

19 This field is near -- MA is above the
20 reservoir. The trend has been down. This field
21 is also above the reservoir, LA, and it is
22 downstream from all of Fidelity's untreated
23 discharge points they had. And yet the cooperator
24 says sometimes there wasn't for this untreated
25 discharge prior to when they could discharge

1 untreated, that if it hadn't been for the CBM
2 water, they wouldn't have had enough water to
3 irrigate with. And so we've leveled out at .02
4 percent.

5 This is between the Tongue River
6 Reservoir, between Birney and Ashland, and the
7 trend has been down. This is an unirrigated field
8 in Ashland, and yet it is very similar to this
9 one. It's grass as well.

10 This is at the Brandenburg Bridge. We
11 had one cutting, the third cutting one year that
12 made that spike up, but this is just -- I haven't
13 seen any increase in sodium.

14 DB is between Brandenburg Bridge and the
15 Twelve Mile Dam. We see a little bit of an
16 increase there.

17 This one is two miles south of Miles
18 City, and so that one has been -- we're at or
19 below where we started.

20 This one is beyond where Roger farms,
21 and the trend has been down in the forage.

22 And this one is Fort Keough, and it
23 seems very similar. That's the Yellowstone River
24 water there, and this is T&Y water, this is T&Y
25 water as well.

1 If you put something on -- and I'll show
2 you in my test plot data that plants are going to
3 pick it up.

4 So this is from our test plots, and
5 there is a lot of numbers here. This is the
6 water, and this is the percentage that is Tongue
7 River water. So we have two 17,000 gallon frack
8 tanks sitting there. One is for Tongue River
9 water, and it is above any of Fidelity's discharge
10 points of the untreated water; and then the other
11 one holds CBM water.

12 We have a manifold system. So we have
13 four waters, we have two methods of irrigation
14 flood and sprinkler, so we have fewer applications
15 of each, and we have two crops. If you multiply
16 those out, you've got 48 replications on a half
17 acre. Each plot is -- The flood are about eight
18 by 22 feet, and the sprinkler is 15 by 30.

19 So we've got 100 percent Tongue River;
20 we've got 93 percent Tongue River, 7 percent CBM;
21 85/15 and 50/50. What's interesting is there was
22 the thing about -- this morning I believe Roger
23 talked about numerical standards that were set for
24 the Tongue River. The 85/15 blend is just a
25 little bit below those numbers. When we take a

1 CBM water that has an SAR of 52, and the Tongue
2 River which is a little bit less than one, and put
3 them together, 85/15, we have an SAR of like 2.7;
4 and the numerical standard during the irrigation
5 season was three, so we're below that.

6 Our 50/50 blend, you'd think, well, the
7 SAR should be 26 if you have one, an SAR of one
8 that you're blending with an SAR of 52; but the
9 SAR equation in the denominator part has -- you
10 have to take the square root of the average
11 concentration of magnesium and calcium, and by
12 that square root, when you mix water such as I've
13 talked about, 50/50, the SAR is little over 12.
14 You don't blend it together.

15 Now, conductivities, the specific
16 conductance, is a straight average, but SARs are
17 not, and so that's the real key there.

18 This 93 percent has an SAR of about 1.7,
19 which is up from around .8, .9, so it's a little
20 bit of water. It doesn't go up.

21 Now, the numbers, these -- Everything we
22 have here, we've got yield crude protein, percent
23 acid detergent fiber, which is just the
24 non-digestible parts; TDN, which is total
25 digestible nutrients; and then percent sodium.

1 None of these that are in yellow, that forage
2 information, none of those are significant.

3 But you look over here, this is the
4 first year of hay barley, and as we put the extra
5 sodium on, you can see it went from .1 to .31,
6 more than double. So what you put on that,
7 whether it's fertilizer, sodium, nitrogen,
8 whatever, it ends up going into the plant.

9 Now, 7 percent, that is not significant.
10 There is a numerical change of .11 to .12, but it
11 takes at least 15 percent to get to where we're
12 significant.

13 Here is the next year, hay barley as
14 well, and we've seen this in alfalfa as well, that
15 again, it more than doubles. Here we have a
16 change of from .16 to .17, which is not
17 significant. From 100 percent to 93 percent.
18 85/15. We do get a significant increase in sodium
19 in the crops.

20 And there was a point I was going to
21 make. It's like a sneeze that escapes. Maybe
22 I'll think of it later.

23 Since we've had State funding, the
24 Montana Board of Oil and Gas Commission website
25 has our reports there. Our full report is like

1 280 pages. It describes everything we've done.
2 We've updated that every year. We have, in
3 executive summary there, we've put the brochure
4 there; which we didn't get that updated from two
5 years ago, but you have copies of my slides that
6 would update it.

7 So the other thing is all the soil test
8 results are posted to Energy Lab's website. They
9 send them to me first, because I do fertilizer
10 recommendations, and then I want to meet with the
11 cooperators in the spring and go over their soil
12 tests. I put pH, SAR, soil conductivity, ESP, and
13 texture on sheets, that for each one of these
14 sites we've got them listed by year, so we can
15 track what happens, and easily see that from year
16 to year, how it's changed. They put them on the
17 website before I see it. And then the 2003 to
18 2010s are there.

19 So here is the Energy Lab's website.
20 Here is the AMPP logo. You click on that. We
21 also have another similar study going on Prairie
22 Dog Creek, which is by Sheridan, Wyoming. And so
23 those are posted there as well. This is the AMPP
24 data. Here is all the sites listed. This WAA is
25 actually just a Tier 1 site. It doesn't have the

1 input sampling.

2 So you click on one of these, and you
3 click YAA, which is northeast of Miles City. Here
4 is all the sampling data that is there, that you
5 can go in and download all that.

6 The summary. So we've seen differences
7 in EC and SAR between fields. The key to this
8 program is we are regular and systematic. I
9 talked to some people, encouraged them to be
10 cooperators back in 2003. Roger was one of them.
11 I met with you, what, probably three times, twice
12 or three times, encouraged you to be a cooperator.
13 He chose not to.

14 We have come -- and those people said,
15 "We've soil sampled this year," and the last time
16 I checked with any of those people -- not
17 specifically with Roger. Roger had a retired soil
18 scientist that T&Y did, had some testing done --
19 but those other people that are up river, they had
20 soil sample done. The last time I checked with
21 them, they haven't done any sampling since, and we
22 have sampled nine time in ten years.

23 So we are regular and systematic. We do
24 the GPS way points. This is a scientific project,
25 and so it is essential to credibility.

1 So the characteristics of the irrigated
2 soils reflect what the water source is and the
3 irrigation management. I did read this bullet
4 point. As you can see, those graphs that I
5 showed, the three styles, where the EC increased
6 with depth, where it maxed out at 30 inches, and
7 then it really didn't change with depth, that
8 reflects soil characteristics. Water source is
9 pretty much all the same.

10 The irrigation management. I had a
11 gentleman that went from hour sets with side rolls
12 to 24 hour sets. What it did is now his peak EC
13 moved from twelve to 24 inches down to 24 to 36
14 inches, because just changing -- doubling his set
15 time, how long he let the water run.

16 We have not seen any impairments due to
17 SAR's, including soils beyond Roger, and we can --
18 we'll have future -- we're going to continue this
19 program to see.

20 Some questions I had as Roger was
21 speaking, some of the things that he did not cover
22 was -- First of all, I noticed one thing on the
23 these photos. They were dated October 15th of
24 2006, the ones that showed the wilting. It's
25 probably indication of late watering. What it

1 showed in there was there was too much water. As
2 whether it was the CBM, the border dikes looked
3 better. Not because of the CBM. Most likely
4 water got up on the border dike, but just the fact
5 that there was more oxygen in the soil.

6 If you over water, it's going to look
7 like that every time. I've seen alfalfa like that
8 where water stands, it dies in that same manner.
9 So as to whether it is CBM or water, or if it is
10 just water at all. You could have same the
11 effects with holy water versus CBM water if you
12 over water.

13 How old was that stand? The real key is
14 alfalfa in heavy soils will develop phytophthora
15 root rot, and is caused from water logged soils.
16 And if you've had a short rotation between stands
17 of alfalfa, as Roger mentioned, there was some
18 phytotoxicity between the existing alfalfa and the
19 next alfalfa crop. Well, if there is not two
20 growing seasons in between, you can end up with
21 that disease real easily, if things go adversely
22 against you.

23 Something he mentioned was the corn grew
24 fine. I did test plots for Stillwater Mining
25 Company, where we put gypsum on sodic spots. Corn

1 in sodic spots grew this tall. Corn, where we
2 reclaimed it, but had the exact same conductivity,
3 grew to be nine, ten feet tall. So we maintained
4 the conductivity of the soil the same. All that
5 changed was we decreased the sodium. And so corn
6 just does not flat out grow where sodium is.

7 The other thing I noticed about the
8 field in question was the field seemed to be worse
9 at the top. Those were awfully long runs for
10 irrigation, flood irrigation. I have farmers that
11 would have probably had three cross stitches in
12 there, so you get the water on the field, off the
13 field.

14 So I'm not trying to pick on Roger, but
15 this is just some things as an agronomist that I
16 note.

17 I mentioned that -- and Tom will allude
18 to this -- that in his hydrology study, that since
19 1960 -- is that correct, Tom -- 1961, he looked at
20 state line and Miles City both. The five driest
21 years, four of them have been since 2000.

22 So when a drought occurs, farmers
23 irrigate more because you're not getting the
24 precipitation. So if we run water more across the
25 field, heavy soils, whether there is -- it can

1 cause -- just stands. A stand does not last even
2 in, say, a loam or clay loam soil, much less a
3 clay, does not last as long under flood irrigation
4 as they do sprinklers, because you were sending
5 all that water down that field. For the time
6 being the water is on the field, you're voiding
7 the soil of oxygen.

8 And that is a legume, and you have
9 nodules on there, and those nodules need to have
10 oxygen to carry on what they're doing. The plant
11 needs oxygen. Legumes in general do not tolerate
12 wet feet, is what it is.

13 So those are some things that I had
14 noted. So I guess do we do questions at this
15 point in time?

16 CHAIRMAN TYLER: Anybody have questions,
17 for Neal?

18 MR. MUGGLI: You know that field, I
19 irrigate that in three hours. I get that across
20 that field in three hours.

21 MR. FEHRINGER: How long is the run,
22 Roger?

23 MR. MUGGLI: 1,800 feet. I get it
24 across in three hours. That was the next one.

25 MR. FEHRINGER: I would have a hard time

1 believing that, that it was three hours, 1,800
2 feet, on as flat as the soil is out there
3 northeast of Miles City.

4 MR. MUGGLI: You know, Neal, this whole
5 thing is getting to be kind of a credibility scene
6 here. I resent the fact that you can sit there
7 and shoot your mouth off about -- compare me to
8 Kaczynski.

9 MR. FEHRINGER: I never mentioned
10 Kaczynski, Roger.

11 MR. MUGGLI: Who the hell ever.

12 CHAIRMAN TYLER: Why don't we hold it,
13 guys, and keep going with the presentation, and
14 have our questions towards the end. Does anybody
15 have more questions for Neal as per this
16 particular study he's presenting?

17 MR. COMPTON: Neal, with respect to clay
18 content, and I think what you were suggesting is
19 that equally important to -- with respect to soil
20 sensitivity to sodium, it is not only the clay
21 content, it's the percentage of the smectitic clay
22 content; isn't that right?

23 MR. FEHRINGER: Yes, according to
24 research, that smectite type clays -- and this is
25 from Jim Bauder's research at MSU -- that if you

1 have -- they will become impaired at SAR of six or
2 above. If you take illite, it's around ten, and
3 kaolinite will be at 16. Yes, that has been
4 published and referenced in lot of papers.

5 MR. COMPTON: Thanks.

6 CHAIRMAN TYLER: Questions for Neal?

7 MR. MUGGLI: Well, we had the Suarez
8 report. They took the soil sample from those
9 areas, and that's the famous agronomy outfit in
10 California. They said they'd be having damages in
11 one and a half to two SAR. And they took that big
12 sample down there and grew alfalfa in it, and
13 simulated irrigation, simulated rain events.

14 Quite frankly I resent the fact that
15 we're compared to some kind of a radical, because
16 I've never been that way.

17 MR. FEHRINGER: I don't know who
18 compared you to some radical, Roger. I'm just
19 stating fact. I'm showing scientific data. I
20 have a paper trail for eight years that we can do
21 it, so --

22 MR. MUGGLI: Where did our yield go?

23 MR. FEHRINGER: Where did your yield go?
24 There's other things. How many times have you
25 watered since -- per year? When you've got

1 rainfall in the 1990s versus drought in the
2 2000's.

3 MR. MUGGLI: I pretty much do it on
4 three irrigations the whole summer.

5 MR. FEHRINGER: If you had problem
6 soils, why didn't you become a cooperator for us
7 to check that soil?

8 MR. MUGGLI: Because we were in this jam
9 to begin with Fidelity, and you were working for
10 Fidelity. That's the bottom line.

11 CHAIRMAN TYLER: Roger, I know this is a
12 tough topic for you, but let's keep going with the
13 presentation here. Thank you, Neal.

14 MR. OSBORNE: Mr. Chairman, I'll do a
15 time check before I'm starting.

16 CHAIRMAN TYLER: We're getting close.
17 Can you wrap it up in ten or fifteen?

18 MR. OSBORNE: Just to point out that
19 these are what reports look like that are posted
20 as PDF files on the foregoing gas website. This
21 is the AMPP report, the one that Neal was talking
22 about.

23 And he also referred to this report,
24 which is the Tier 3 study, which is the test
25 plots. That's published in a separate report.

1 Then the hydrology study which I'm about to
2 address is this report. So you'll find the
3 various years. All three of these reports are --
4 The Tier 3 isn't published every year, but you'll
5 find at least two of these for each year.

6 I'll talk about the hydrology of the
7 Tongue River. There is a map of the basin. All
8 these grade points are oil and gas wells. So here
9 is where they're clustered in the basin. Bighorn
10 Mountains here in Wyoming, Birney, Miles City.
11 This is considered the lower basin, and the upper
12 basin.

13 You see a map to show you the
14 distribution of irrigated lands. Here is the
15 state line, Sheridan, Tongue River. All of the
16 red are irrigated lands. And you might be
17 surprised to realize that along the Tongue River
18 77 percent of the irrigated land is in Wyoming,
19 and 23 percent in Montana.

20 Typical pumped irrigation diversion from
21 the river.

22 Here is a chart showing the number of
23 coal bed natural gas wells in strictly the Tongue
24 River Basin in both Montana and Wyoming. The red
25 line is the total number of wells; the green line

1 the number in Montana, this line being the number
2 in Wyoming. So we're at total around 3,000 wells
3 that have been drilled in the basin. Not all are
4 operating.

5 And you'll notice that there is an
6 actual -- For the first time since coal bed
7 natural gas operations started in the basin,
8 between 2008 and 2009, there was a decline in the
9 number of wells. And we're working on the 2010
10 report, and I think that will probably be fairly
11 stable. There probably will not be any increase
12 really in that number.

13 I mentioned that 3,000 wells; 71 percent
14 of those wells are in Wyoming. The average rate
15 of produced water in 2009 from a CBNG well in all
16 of the Tongue River Basin was about a little over
17 three gallons per minute. Total produced water in
18 the whole basin was about 20.6 cubic feet per
19 second on average.

20 What happens to that water? It's just a
21 real brief snapshot of that. About 87 percent of
22 all this produced water goes into impoundments, or
23 was beneficially used or treated prior to
24 discharge, and the remainder of 13 percent was
25 untreated discharged directly to the Tongue River.

1 So all these, almost all of these impoundments are
2 in Wyoming, and they're permitted by the Wyoming
3 Department of Environmental Quality. They have
4 monitoring around them, and they have reporting
5 requirements for ground water quality.

6 Just looking at what is the chemical
7 composition of coal bed methane waters, this is
8 total dissolved solids, 568 to 2,000, medium of
9 about 1,200; SAR's of eleven to 82, median about
10 46.

11 The water as it comes out of the wells
12 is dominated by the sodium and bicarbonate
13 components. This water is generally suitable for
14 domestic use and livestock, and is used
15 extensively of course throughout the basin, as you
16 probably know. It's generally unsuitable for
17 direct application to soils in its 100 percent raw
18 state without treatment of either the soils or the
19 water itself.

20 But I would say that a lot of coal bed
21 natural gas produced water in Wyoming is managed
22 with a process called managed irrigation, where
23 the soils or the water are treated with
24 amendments, and then the soils are monitored over
25 time to make sure that the salts are in good

1 concentrations for crops. And of course in 2010,
2 the act of Fidelity MPDES permit was requiring
3 treatment to both reduce salinity and sodium.

4 So I think you're familiar with kind of
5 where the coal bed natural gas outfalls are.
6 Generally just above the Tongue River Reservoir in
7 this area. And this chart just shows some of the
8 other -- Coal bed natural gas isn't of course the
9 only influence on the quality of water in the
10 river. There is quite a lot of other human caused
11 influences. There is big urban center in the
12 basin at Sheridan, right? So they have a
13 wastewater treatment plant. All wastewaters
14 generally increase in sodium, and some, including
15 domestic waste water, increase in salinity and
16 sodium.

17 You have feed lot operations, and you
18 have coal mining discharges, of five, six, seven
19 cubic feet per second in this region; and you have
20 irrigation return flows, some of which have been
21 mapped and located on here. And all of those have
22 a potential influence. And the natural factors.
23 The Tongue River Basin isn't a really highly
24 developed basin. It's intensively used. All the
25 water is intensively used, but it's not

1 intensively industrialized. So the natural
2 factors in the river play a big role in the
3 quality of the water.

4 I want to take a look at this
5 relationship between flow and quality. You cannot
6 consider the quality of the Tongue River, or most
7 any river, without considering what the flow is
8 when the samples were taken. To make that point,
9 I've kind of broke out just a small window of the
10 data that might have raised the concern of
11 somebody had they just taken a very narrow and
12 cursory look at the data.

13 So here on the top chart, these are the
14 -- this is a little piece of that graph I showed
15 earlier from 1999 to 2006, where the number of
16 coal bed natural gas wells in the Tongue River
17 Basin was ramping up pretty markedly.

18 The lower chart is the median annual
19 specific conductance of the Tongue River. So you
20 take all of the data -- and this is below the
21 Tongue River dam, so it would include all the coal
22 bed natural gas discharges above it -- and again,
23 the same years, 1997 to 2006. So the median
24 specific conductance of the river at that station
25 seemed a pretty -- with one exception seemed to

1 climb at the same time that the number of coal bed
2 natural gas wells was also rising.

3 So you could put two and two together
4 possibly and assume that was the cause. But you
5 have to -- The science aspect of this, you have to
6 look further. You have to look at the bigger
7 picture.

8 So now here's an expanded time chart on
9 the upper part from 1988 to 2010, so about twenty
10 years of data. And in the blue, the blue line is
11 the median discharge of the Tongue River below the
12 dam, and the red dots in the line are the median
13 specific conductance. So just a very simple
14 representation of the flow and the quality in the
15 river over this time span.

16 So here in these early years in the
17 1990s, we kind of see not a lot of variation in
18 the kind of the status quo, maybe everybody would
19 like to see; and we had a record discharge in the
20 river in 1998 -- not record -- a high discharge
21 actually. At the same time we see specific
22 conductance dropping.

23 Then what did the river flows do? They
24 dropped quite dramatically and steadily, and
25 stayed low. And as Neal mentioned, we had the

1 driest years of record on the Tongue River
2 occurred in the early 2000s, four of the driest
3 years. The only other really dry year was 1961.
4 And specific conductance climbed, just one year
5 after another, maybe with one little exception
6 when the river popped back up.

7 And looking then beyond 2006 when the
8 river returned to more normal flows, or even in
9 some cases above normal flows, here is the river
10 flow going up, specific conductance coming right
11 back down.

12 So you have to look, whether it's yearly
13 data or daily data, you have to combine and look
14 at the quality with the discharge. So then if we
15 take the same data, and we do a regression plot
16 discharge on this axis, which is expressed here
17 in cubic meters per second, versus the salinity or
18 EC, SAR -- excuse me -- the SC, you'll see that --

19 Here I broke it out on two time frames,
20 the pre-coal bed natural gas over here, and the
21 post-coal bed natural gas over here. It follows a
22 pretty regular pattern, where as the river
23 discharge increases this way, the median specific
24 conductance goes down. And as the river discharge
25 decreases, the specific conductance goes up.

1 Those were the years I had shown in the previous
2 chart.

3 So some of the data that you'll find in
4 the hydrology report for really every USGS station
5 on the river are charts like this, which sort of
6 break out the discharge -- this is a logarithmic
7 scale -- and specific conductance for three
8 periods, basically the pre-2000 water year prior
9 to when coal bed natural gas started, the
10 post-2000, and then the present year, the year
11 that the report is actually written is shown in a
12 separate color.

13 So we break these out so you can kind of
14 see the scatter of points, again, relating to
15 specific conductance to the discharge, and this is
16 generally just made to give you a visual idea of
17 what the data looked like. And generally, while I
18 haven't tested it statistically, they're generally
19 comparable. They're falling within the same range
20 of discharge versus specific conductance.

21 We do the same type of chart for
22 discharge versus SAR. So here again, an example
23 on one of the charts is showing the distribution
24 of data from all of the time periods available,
25 broken out so that you see post-coal bed natural

1 gas development separately.

2 CHAIRMAN TYLER: Tom, I have a question,
3 and maybe Roger can answer it, too. How many
4 months of the year is the discharge only 100 CFS
5 on the Tongue? Is it really that small a river?

6 MR. OSBORNE: That would be infrequent.
7 The average is like in the 250 or so range.

8 CHAIRMAN TYLER: It looks like there is
9 a lot of grouping down at the 100 CFS mark.

10 MR. OSBORNE: Again, these would be
11 individual readings where we actually -- that SAR
12 reading was taken, and the corresponding river
13 reading at the time. So yes, there are times when
14 it is that low. Again, this is a logarithmic
15 scale, so 200 would be somewhere right in here.
16 But yes, there are some very low readings on here.
17 It's not the rule.

18 So here is a slide, just to put in
19 perspective the amount of coal bed natural gas
20 water being discharged to the river in 2009 again
21 -- now, this is a couple years ago -- as a percent
22 of the flow of the river, for the months of the
23 year, for the months of 2009, January through
24 December. This scale runs from zero to 5 percent.
25 The red line is total coal bed natural gas

1 discharge treated plus untreated. The blue line
2 is the untreated portion.

3 So in the irrigation season April to
4 October, the total coal bed natural gas discharge
5 treated plus untreated doesn't really exceed.
6 Most of the time it's less than one percent. It
7 never -- October, it was 2 percent of the flow of
8 the river below the Tongue River Dam. And
9 untreated water was generally always less than
10 about a percent and a half, somewhere in that
11 range.

12 MS. BUCKIN-SANCHEZ: Excuse me. You
13 said that the untreated TDS is around 120
14 milligrams per liter, and what is the treated?

15 MR. OSBORNE: TDS of the treated versus
16 untreated water?

17 MS. BUCKIN-SANCHEZ: Correct. What is
18 the treated TDS?

19 MR. OSBORNE: Maybe you could answer
20 that.

21 MR. OLSON: 400 to 500 milligrams per
22 liter.

23 MR. OSBORNE: So this is just meant to
24 kind of put in perspective the scale of coal bed
25 natural gas discharges versus the flow of the

1 river.

2 Just turning attention away from our
3 particular study to some other relevant
4 information, I think, that I just haven't seen out
5 there in the literature discussed. The EPA
6 sponsored a water quality study of the Tongue
7 River in 2007. They issued a report with some big
8 appendices. And I thought it would be useful to
9 just pull in their information.

10 They noted there were ten exceedences of
11 the average monthly specific conductance water
12 quality standard on the Tongue River at the Miles
13 City station, and one at Birney; and I think one
14 instantaneous exceedence. But there were no
15 exceedences of the monthly SAR criteria for any
16 station on the river during the period of time
17 that they looked.

18 And these exceedences are again at the
19 Miles City gauging station, which is 120, 150
20 miles downstream, river miles downstream, from the
21 coal bed natural gas discharges. A lot happens in
22 those miles. One of the things that, of course,
23 happens is that this generally only occurs when
24 the flows in the river are very low, when the
25 flows at the Miles City gate are very low, and

1 that generally occurs in some of these drought
2 years.

3 This is below where the T&Y Twelve Mile
4 Dam takes out its share of river water for
5 irrigation, so naturally there simply isn't much
6 water left in the river, and we are talking about
7 very low flows. So the only water that really
8 remains in the river are -- there is discharge
9 possibly from -- there is alluvial groundwater;
10 there's discharge that comes down from Pumpkin
11 Creek; and possibly a little bit of irrigation
12 return flows; canal seepage.

13 All of those, because they have to seep
14 through the natural soils of the area, they pick
15 up salts, and so it's not surprising that you see
16 some exceedences when you get to that amount of
17 change in the flow of the river. But it cannot be
18 related to coal bed natural gas in any way,
19 because if it was, we would see these exceedences
20 happening much closer to where coal bed natural
21 gas actually discharges, and before it gets
22 diluted by the river, which would be above the dam
23 or immediately below the dam. You simply have not
24 had any occurrences of exceedences at those
25 stations.

1 This study went even farther. They
2 said, "Okay. We have a few exceedences. Let's go
3 run a model," and so the EPA's contractor put
4 together a model that attempted to account for the
5 increase in salinity in the river by two sources:
6 Coal bed natural gas and irrigation. And I can't
7 vouch for the quality of their study, but other
8 than relate it to you as an independent source.

9 But they basically found that coal bed
10 natural gas increased the salinity of the river
11 from about 4 to 5 percent. They also found that
12 irrigation increased the salinity of the river
13 from 20 to 21 percent.

14 And it shouldn't come as a surprise, if
15 you think back to the share, the very small share
16 of the river, total river water that coal bed
17 natural gas involves, and the relatively big water
18 use that irrigation imposes on the river. The
19 river has been affected by salinity from
20 irrigation since the days in Egypt.

21 So that shouldn't come a big surprise.
22 But it's good to see these kind of numbers, and I
23 think it hopefully can bring us together on
24 science a little bit better to see it coming from
25 a study like ours, as well as a study that's

1 sponsored by EPA.

2 So that is just to summarize, SC and SAR
3 are in the natural condition inversely correlated
4 with flow, where you're going to see higher SC at
5 lower flow naturally. Salinity and SAR after coal
6 bed natural gas development began are comparable
7 to predevelopment levels at all USGS gauging
8 stations. We simply don't see significant
9 differences.

10 And as Neal discussed, our studies in
11 the TRIP project have shown that existing SC and
12 SAR levels are not having detrimental effects on
13 soils or crops.

14 Some acknowledgments. And of course,
15 thanking our cooperating farmers and ranchers out
16 there along the Tongue and the tributaries, and
17 the Board of Oil and Gas for sponsoring us. And
18 these are some websites. Recently we published an
19 article in the Journal of Soil and Water
20 Conservation that summarizes it, and you can
21 access this site, and get the PDF article for
22 free.

23 That's it.

24 CHAIRMAN TYLER: Thank you, Tom.

25 Questions for Tom?

1 MS. LINDLIEF-HALL: Tom, I have a couple
2 of questions. When you were talking about the
3 human factors and CBM water, you used the
4 microsiemens per centimeter for human factors, and
5 this was in one of your last slides, and then you
6 used a percentage, I think you said 4 to 5 percent
7 for coal bed methane.

8 Can you tell me how those two correlate,
9 the microsiemens per centimeter versus the
10 percentage?

11 MR. OSBORNE: Well, the way I would -- I
12 think they're kind of different, in the sense that
13 the -- if I showed specific conductance with
14 microsiemens per centimeter, that was the actual
15 water chemistry measurement of the water at that
16 time.

17 But the percentage referred to the
18 actual -- just the flow part of it, just the
19 percentage of flow in the river that the coal bed
20 natural gas discharges are as percentage of the
21 river flow for each month of 2009. So it was just
22 percentage based on flow. It didn't have any
23 water quality -- didn't apply to water quality.

24 MS. LINDLIEF-HALL: So I guess what I
25 didn't understand was why the human factors or

1 discharges from other kinds of -- perhaps the
2 water treatment plant in Sheridan, those kind of
3 things weren't expressed in the percentage.

4 MR. OSBORNE: Nobody collects data on
5 that. They're not required to use -- Municipal
6 discharges don't have to sample for salinity, just
7 other things like BOD.

8 MS. LINDLIEF-HALL: So they just were
9 not comparable sorts of --

10 MR. OSBORNE: Someone would have to
11 collect some data to find out.

12 MS. LINDLIEF-HALL: Then I did just have
13 one more question. In the first part of your
14 presentation, you were talking about the
15 percentages I think of coal bed methane water that
16 was -- or flows, and you had said that there was
17 like 2.1 gallons per minute in 2009 that was
18 discharged into the river -- I don't remember
19 exactly which slide that was -- and then you said
20 that 20.6 cubic feet per second total produced
21 water was being discharged. And again, I'm
22 wondering why gallons per minute for one and --

23 MR. OSBORNE: Just the difference in
24 units?

25 MS. LINDLIEF-HALL: Yes, and how those

1 two would -- again, how they would correlate.

2 MR. OSBORNE: There was a unit change,
3 so I think maybe what you're referring to is the
4 average discharge per well in 2009 of -- All the
5 coal bed natural gas wells in the basin was 3.1
6 gallons per minute, just because you can kind of
7 relate it -- it's like garden hose flow perhaps.
8 And then you total it all up, and I converted it
9 to cubic feet per second, just so you could kind
10 of get a -- it was more convenient units to
11 compare with the flow of the river. So that's the
12 only reason. But you could express it in gallons
13 per minute as well.

14 MS. LINDLIEF-HALL: So would that be
15 like impossible to do, like just right off the top
16 of your head?

17 MR. OSBORNE: I think there's 448.8
18 gallons per minute per cubic feet per second. If
19 you want to express it in a bigger number like
20 gallons per minute, we can do it.

21 MS. LINDLIEF-HALL: Thank you.

22 CHAIRMAN TYLER: Questions for Tom.

23 MR. SALLEY: I'm not familiar with the
24 mechanics of this coal bed thing, so these wells
25 just discharge continuously, or is it stored and

1 released, or is it pumped to intervals? How does
2 it enter the soil?

3 MR. OSBORNE: Generally once production
4 of a coal bed natural gas well comes on line, it's
5 produced -- both gas and water are produced
6 continuously, as long as that well remains in
7 production. The water -- The gas, of course, goes
8 through a separate pipeline system to compression
9 and to sale. The water also goes into a pipeline
10 system, and then it goes to whatever water
11 management facilities that particular operator
12 has.

13 So in Wyoming where most of the wells
14 are, a lot of the water is directed to
15 impoundments where it's held. So a fraction of
16 that water evaporates, a smaller fraction
17 actually. The rest of it gradually seeps into the
18 subsurface where it recharges the shallow
19 groundwater system. And these are permitted
20 facilities. They have to get permits from the
21 Wyoming DEQ.

22 Some of the water that's produced will
23 go maybe from an impoundment to a managed
24 irrigation system, where it goes through a center
25 pivot, or side rail system, that's managed

1 specifically for produced water. In some cases,
2 they are also using subsurface drip irrigation
3 systems where drip tapes are plowed into the soil,
4 pressure emitters in the system vary regulated
5 amounts of produced water is put into the
6 subsurface, and they grow a crop over that as well
7 and harvest it. So there is a number of -- In
8 some cases it goes to some injection wells.

9 So each operator has a mix of management
10 devices that they're using to handle that produced
11 water. And it is one of the challenges of this
12 particular type of operation, is that the
13 continual production of that water has to be
14 managed.

15 But it is also true that the amount of
16 water being produced by coal bed natural gas is a
17 lot less than people initially estimated back when
18 the departmental impact studies were done before
19 it got started in the early years. It got started
20 in 1998, 1999, 2000. There was a lot higher
21 projected. But the actual amount of water
22 produced has not been that great.

23 CHAIRMAN TYLER: Tom, thank you so much.
24 We've got --

25 MR. OLSON: Can I make a comment? My

1 name is Dave Olson with Fidelity. And to answer
2 your question, the goal of a coal bed natural gas
3 well is not to completely drain a coal seam. If
4 you do that, you get an unreleased -- uncontrolled
5 release of natural gas.

6 The goal is to get the water level in
7 the coal seam at a certain level where you have a
8 controlled release for this gas. And every well
9 is unique, I should say, because they all have a
10 different water level that you want to tweak the
11 well to, to get to this water level, where you
12 have a maximum release of natural gas. So they
13 cycle on and off all the time. I hope that helps.

14 CHAIRMAN TYLER: Thank you. So on the
15 agenda, we're not too far off. Karen was asking
16 about it. Let's not short Rod who has a
17 presentation on carcinogens, as well as the
18 Prickley Pear irrigation ditch.

19 MR. MCNEIL: I wanted to talk to you in
20 January about this concept of the change in the
21 carcinogen categorization scheme that EPA uses.

22 We've been moving along on modifications
23 to DEQ7, and have a recommendation to make to the
24 Council about the breaks in the scale for
25 carcinogen use.

1 There is a body of information which the
2 EPA uses called IRIS, Integrated Risk Information
3 System. There is about 650 chemicals that are
4 listed in there, with a great deal of clinical
5 information about human toxicity. Just to kind of
6 give you an idea, they've had 69,000 compounds
7 submitted to IRIS for evaluation; and in 2005,
8 they decided to change the manner in which they
9 sorted information to determine whether it was
10 appropriate for human risk assessment.

11 And so in 2009, they decided to
12 instigate that new scale. And you guys have this,
13 and so I'm just going to skip through some of
14 this.

15 The problem is that this is the original
16 scale as it's currently used in DEQ7. We made the
17 break as defined in Footnote 2 right here, so
18 everything above here was defined as a carcinogen;
19 everything below as a toxin. Here is the new
20 cancer classification scale. It has one more
21 sector that it defines in this risk assessment.

22 And we have to go back and look at a lot
23 of the classifications for all of the compounds in
24 DEQ7, because not only did they begin using the
25 new scale, they've kept the old scale. So we've

1 got two competing scales, so to speak, being used
2 simultaneously.

3 And beginning in 2005, they went back
4 through what's called the RED program, which is
5 the Reregistration Eligibility Decision
6 classification. Every compound that's in IRIS is
7 reevaluated at least once every ten years, and in
8 doing so, if the compound came after 2005, they
9 used the new scale. So they didn't make the
10 decision to use it until 2009, so there is a four
11 year retrospective reclassification.

12 What we needed to do was to figure out
13 where to break this new scale to allow us to
14 utilize it in DEQ7, and there is differences in
15 the risk factors associated between the two
16 scales. So we can compensate for that
17 mathematically. So the real question comes in:
18 What do we want to consider as a cancer -- a
19 carcinogenic risk?

20 So here is the scale, and where we're
21 proposing to break it. So these four
22 classifications would now be considered
23 carcinogen, and these two would be considered
24 toxic. The rationale for the decision to make the
25 break there is the level of evidence necessary to

1 describe a compound as carcinogenic. It's a much
2 more rigorous definition now than it was in 1984
3 when this scale was formed.

4 We have much better control of human
5 studies, and epidemiology studies in particular,
6 and so it seems to make sense to break the scale
7 right here based on the new epidemiology rules, so
8 this is what we're going to propose.

9 The outcome would be that the Footnote 2
10 would look like this, carcinogen including those
11 parameters in classifications A, B-1, B-2, and C,
12 or under new scale H, L, S,O, L/N. So everything
13 else would be a toxin, and these would all be
14 carcinogens. And I'm proposing also in addition,
15 the column indicating category would be modified
16 to describe the actual classification in
17 parentheses, thereby defining which scale we're
18 going to use.

19 So rather than just saying it's a
20 carcinogen, if I say it's an "A," you know it was
21 classified under the old scale; and you can go
22 back and look at -- see that it was defined as a
23 definite human carcinogen, as opposed to just
24 saying it's a carcinogen, where it could fall
25 anywhere in this range. So to make these

1 modifications to DEQ7 will require all of it to be
2 rereviewed, so everything classified as a
3 carcinogen or a toxin would have to be reviewed.

4 Here is an example of a compound that
5 would change, Atrazine. Originally it was
6 classified as a carcinogen, still is listed that
7 way in the 2010 DEQ7. In the new listing
8 proposal, it would be called toxic, under
9 classification "N."

10 And there are a number of compounds that
11 this has occurred for. There is about seven
12 compounds that were listed as toxic that have
13 become carcinogenic, and eleven toxins have now
14 been reclassified as carcinogenic. So a lot of
15 shifting around between the two scales between
16 2005 and 2009.

17 And we're going to propose to bring this
18 as an action item along with the rest of DEQ7 to
19 WPCAC for your approval in the future. My plan is
20 to bring DEQ7 forward to you in May or June.

21 CHAIRMAN TYLER: You're not looking for
22 action today?

23 MR. McNEIL: I'm not looking at action
24 today. We'll do this as a package with DEQ7. Any
25 questions?

1 CHAIRMAN TYLER: I do have question. Is
2 this above or below the level? (indicating).

3 MR. McNEIL: I'm surprised you haven't
4 died already.

5 CHAIRMAN TYLER: Thank you, Rod. So
6 Prickly Pear, Helena Valley.

7 MR. McNEIL: We have a number of water
8 bodies in the state of Montana that could be
9 considered for reclassification. In order to
10 carry out reclassification, we have to go through
11 a process called "Use Attainability Analysis, or
12 UAA's. And the City of Helena has asked us to
13 consider reclassification of the Helena valley
14 irrigation canal, and because of its proximity to
15 Prickley Pear, then we'll talk about each of
16 these.

17 This is what we're talking about here.
18 This is the reservoir. This is the canal itself.
19 Circles this portion of the city. This is Lake
20 Helena here. These are part of the distribution
21 system for water from the irrigation canal, and
22 then these are return flows, these ones in purple
23 are return flows from the irrigation canal, and
24 they call those ditches. So we get to throw in
25 the term "ditches" there.

1 So this is water right from the
2 Missouri, goes into the holding reservoir from the
3 Missouri, it's pumped in here, and then it's fed
4 out by gravity flow all the way around, and the
5 return flow goes back to Lake Helena.

6 A number of agencies have been studying
7 the water quality in this area for some time,
8 meaning EPA, the Lake Helena Watershed Monitoring
9 Network Group, the DEQ, etc., and so we undertook
10 a program in 2010 to begin monitoring to look at
11 some specific issues that were not addressed in
12 other studies, and in particular, to expand the
13 biology within this area.

14 So the stars are the locations on the
15 irrigation canal where we carried out our studies,
16 and you'll notice that we have two stars located
17 quite close together here. One of the reasons
18 that the City of Helena was interested in having
19 this evaluated was that they had a concept of
20 diverting the flow from the City of Helena
21 wastewater treatment plant directly into the
22 canal, and then applying that nitrogenous load to
23 the land, and thereby reducing the total load to
24 Lake Helena; but to do that, they needed to know
25 more about the water quality and classification,

1 appropriate classification.

2 So there were questions relative to the
3 permitting that required that a UAA be carried
4 out. So this is the point at which that diversion
5 would take place into the canal. Currently, the
6 Helena outfall to Prickly Pear Creek is right
7 here, and the East Helena outfall in Prickley Pear
8 Creek is right here. Both of those empty into
9 Lake Helena.

10 Currently, all of the Helena valley
11 irrigation canal system is classified as B-1. The
12 question is: Is that an appropriate
13 classification? The canal is drained annually, so
14 we have a classification which has not been used,
15 D-1, which reads, "Waters in constructed
16 irrigation and drain ditches which contain control
17 flows, and surface, and are dewatered during the
18 non-irrigation season." It would appear that that
19 would be the appropriate classification for the
20 canal itself.

21 However, if you look at these return
22 ditches, these intercept a great deal of
23 groundwater flow, and so they discharge
24 continuously year around. They're not dewatered.
25 And so they will carry a different classification

1 than the main canal itself.

2 We've just gotten the last of the
3 biological data from the studies that we did last
4 year in the last two weeks, so we're busy trying
5 to process all of this data, but wanted to
6 familiarize you with the issues. So what we're
7 looking at is one classification for the main
8 canal and another classification for the return
9 ditches.

10 The return ditches are currently
11 classified B-1, and as I said, are controlled by
12 groundwater. They have an existing year around
13 fish population which includes salmonids. It has
14 a B-1 classification, and will probably remain a
15 B-1 classification.

16 Now, Prickley Pear is a different bag of
17 worms, if you will. Prickly Pear is a creek that
18 has six segments, two of which are defined as "I"
19 class. "I" class is an older classification system
20 that was developed about 40 years ago that
21 addresses a wide variety of impairments, and so it
22 was sort of a catch-all. Very few water bodies
23 remain in the "I" class, and so as a matter of
24 fact, there is only three water bodies left.

25 So there have been a lot of efforts over

1 the last ten to twenty years to improve water
2 quality in Prickly Pear Creek, and so we wanted to
3 do an evaluation of whether reclassification on
4 the Prickley Pear was appropriate at this time.

5 CHAIRMAN TYLER: What are the three
6 water bodies left?

7 MR. McNEIL: Muddy Creek, and Silver
8 Bow, Butte Silver Bow.

9 CHAIRMAN TYLER: Where is Muddy Creek?

10 MR. McNEIL: That's in the Sun River
11 drainage.

12 MS. NEUMAN: It comes off the Fairfield
13 Bench.

14 MR. McNEIL: Here is our map. The two
15 segments of Prickley Pear which extend down here
16 towards Clancy are classified B-1. This segment
17 here, from this location to here, is actually
18 defined by the outfalls from the East Helena
19 wastewater treatment plant and the City of Helena
20 wastewater treatment plant. This is a Class "I"
21 segment, and this is a Class "I" segment going all
22 the way to Lake Helena. Then Lake Helena itself
23 is a B-1 segment, and then the return to the
24 Missouri, Lake Hauser, is a B-1 segment as well.
25 So it goes B-1, B-1, I, I, B-1, B-1, in terms of

1 the sequence now.

2 There has been a lot of, particularly in
3 the head waters in the region up in the B-1
4 sections, there are a number of impairments to
5 this water body, mostly associated with mining,
6 things like lead, arsenic, zinc, copper
7 exceedences for aquatic life, and human health
8 exceedences for lead and arsenic.

9 So what we're looking at is the
10 collection of the data over the past about 30
11 years to look at trends, to see how much
12 improvement there is in the Prickley Pear, and
13 whether there is enough information to now justify
14 reclassifying Prickley Pear's "I" class segments
15 to some other water body classification.

16 Because some of the kinds of issues that
17 we have to consider is the fact that the
18 impairment relative to human health for arsenic is
19 still sufficiently high that it would require
20 unconventional treatment. So harm to use for the
21 use as water body would probably remain regardless
22 of what we reclassified it as. I think this is
23 part of the Department's effort in the long run to
24 reevaluate all of the "I" class segments, and to
25 put them into more protective status if their

1 water chemistry and biology currently allows that
2 to be done.

3 Timing on this, we plan to prepare the
4 UAA evaluations for both the Helena valley
5 irrigation canal and for Prickley Pear this year.
6 I would expect to bring these to your committee
7 probably in the October/November time frame. I
8 believe you have a meeting in November.

9 So are there any questions on this?

10 MS. BUCKIN-SANCHEZ: I have a question
11 specific to the East Helena wastewater treatment
12 plant and their current MPDES permit. In their
13 permit, they currently have some arsenic
14 requirements that will go into effect I believe in
15 a year or two.

16 If the receiving water was reclassified
17 to B-1, would that then probably increase the
18 treatment requirements in the next permit? I'm
19 trying to --

20 MR. McNEIL: Jenny, please chime in if I
21 say this wrong, but I believe I'm talking -- Jeff
22 May -- that the loading measurements that were
23 done were based on B-1 classification.

24 MS. CHAMBERS: That's correct. There is
25 a Lake Helena TMDL, and the streams are listed as

1 impaired in Lake Helena, and so the point source
2 discharges got the load allocation based upon the
3 B-1 classification, Lake Helena, so levels had
4 already been addressed in both East Helena and
5 upcoming Helena permit renewal. So we're not
6 anticipating that it would make any difference to
7 those dischargers.

8 MS. BUCKIN-SANCHEZ: Thanks.

9 MR. SELCH: Rod, right now you're
10 thinking if you did reclassify B-1, is what you're
11 thing, of making the entire stretch --

12 MR. McNEIL: There is a couple of
13 different ways to look at this. The number of
14 legacy mines along Prickley Pear from the head
15 waters down would be about 200 mine disturbances
16 along -- so the logistics associated with,
17 economic costs associated with complete
18 restoration would be prohibitive, I think, and so
19 more perhaps a more logical classification would
20 be C-1 to remove drinking water use.

21 If we see salmonid support, some cuts in
22 there, and throughout even impaired the Section
23 C-1, so we certainly have the temperature regime
24 in the head waters necessary to support cold water
25 salmonids. So C-1 is a possibility.

1 MR. SELCH: So the entire thing would be
2 reclassified? The B-1 would drop to C-1?

3 MR. McNEIL: That's the kind of thing we
4 look at in a UAA. We could consider reclassifying
5 all of the creek. That's considered removal of
6 the use. So the standards for writing a UAA that
7 removes the use are extremely stringent, and would
8 take a pretty tall stack of data and rationale to
9 justify removing the use.

10 That said, if that's the right thing to
11 do, and we have the data to support it, that is
12 the route we would take, is make all of the
13 Prickley Pear C-1. The -- I guess I'll call it
14 the path of least resistance would be making it
15 B-1 to coincide with all the other existing
16 sections that are already classified as B-1.

17 MR. SELCH: Is Ten Mile B-1 coming in
18 there?

19 MR. McNEIL: Yes, it is.

20 MR. SELCH: All the way from the
21 treat --

22 MR. McNEIL: Yes, I believe so.

23 CHAIRMAN TYLER: Questions?

24 (No response)

25 CHAIRMAN TYLER: Thank you, Rod.

1 So public comment period. Is there
2 anybody here that wishes to address the Council?

3 MR. OLSON: Of course I do. Again, my
4 name is Dave Olson with Fidelity Exploration and
5 Production.

6 It was alluded to earlier that DEQ is
7 allowing Fidelity to discharge untreated water to
8 the Tongue River. That's not the case. We are
9 treating 100 percent of our water to the Tongue
10 River per our current effluent limits. So I
11 wanted to make sure that everybody understands
12 that.

13 The DEQ did grant an AOC, an
14 Administrative Order on Consent, for two of our
15 outfalls that have no infrastructure to get the
16 treated water to these outfalls, and the goal is
17 this summer during construction season to put the
18 pipelines into those two outfalls to get treated
19 water to the other two outfalls.

20 This AOC will allow us, if need be, to
21 discharge untreated water to the Tongue River for
22 a short period of time. We're hoping we don't
23 need that, but it's a little insurance policy, if
24 you will, for us.

25 And also, Roger you alluded to injection

1 well. Fidelity has looked at that. We're in the
2 second year of a permit process to get a
3 classified injection well permit from EPA, and we
4 don't see any light at the end of the tunnel on
5 that yet. We're still working through that.
6 We've spent a lot of money, a lot of time, but
7 they just won't seem to grant us that permit.

8 So those are my only comments. Thank
9 you.

10 CHAIRMAN TYLER: Thank you.

11 MR. SMALL: My name is Ken Small. I'm a
12 visitor. I'd just like to thank you for laboring
13 in obscurity to make the last best place a better
14 place, taking time from your family and your
15 occupations, and things like that. I think you
16 deserve a great deal of thanks, and you probably
17 won't get it, except from me.

18 CHAIRMAN TYLER: Well, thank you, sir.
19 Any other public comments?

20 (No response)

21 CHAIRMAN TYLER: Agenda items for next
22 meeting. Agenda items, Bob and others.

23 MR. BUKANTIS: Well, I'm thinking Jenny
24 is going to have another rule package next --

25 MS. CHAMBERS: Yes. Tom said we're

1 doing four rules, MPDES package. We cut this one
2 package, first phase, in half. Otherwise the
3 floor would have got 80, 90 pages, and we thought
4 that was too big. It depends on how the BER goes.
5 We've got that draft, and we may present that to
6 you for action items, so we can keep going along
7 with these MPDES phases. So yes, I may have a
8 another rule package, action item to move forward.

9 CHAIRMAN TYLER: When is our next
10 meeting?

11 MR. BUKANTIS: June 23rd. I think we
12 might have -- we're thinking we're going to be up
13 with the DEQ7?

14 MR. McNEIL: Yes. It's my intent to
15 bring DEQ7 forward as an action item.

16 CHAIRMAN TYLER: That would be an
17 action?

18 MR. BUKANTIS: Yes, assuming we're ready
19 with that in time. Rod, you're feeling pretty
20 good about that?

21 MR. McNEIL: Yes. We've got all of the
22 reviews done based on this break in the carcinogen
23 scale; we've got all of the RRD work done. The
24 new pesticide values in the review are what we're
25 waiting on now.

1 MR. BUKANTIS: Then the usual suspects
2 for briefing items.

3 CHAIRMAN TYLER: The usual suspects.
4 You've got a new one in back there. We want him
5 back. I'm sorry, sir. I didn't remember your
6 name.

7 MR. SMALL: Ken small.

8 CHAIRMAN TYLER: Thank you, Ken. So it
9 sounds like we'll be here. Any other business,
10 new or old?

11 (No response)

12 CHAIRMAN TYLER: Meeting adjourned.
13 Thank you everybody.

14 (The proceedings were concluded
15 at 2:48 p.m.)

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C E R T I F I C A T E

STATE OF MONTANA)
: SS.
COUNTY OF LEWIS & CLARK)

I, LAURIE CRUTCHER, RPR, Court Reporter,
Notary Public in and for the County of Lewis &
Clark, State of Montana, do hereby certify:

That the proceedings were taken before me at
the time and place herein named; that the
proceedings were reported by me in shorthand and
transcribed using computer-aided transcription,
and that the foregoing - 156 - pages contain a
true record of the proceedings to the pesticide of
my
ability.

IN WITNESS WHEREOF, I have hereunto set my
hand and affixed my notarial seal
this _____ day of _____, 2011.

LAURIE CRUTCHER, RPR
Court Reporter - Notary Public
My commission expires
March 9, 2012.

<p>\$</p> <p>\$1,500 24:12 \$1,600 24:13 \$10,000 79:22 \$12,000 79:17 \$120,000 73:18 \$125 72:3 \$13,000 79:17 \$226,000 72:4 \$25 26:5 \$48,000 72:9 \$50 26:5 \$95,000 72:7</p> <p>0</p> <p>02 105:12, 105:14, 107:3</p> <p>1</p> <p>1 6:1, 25:6, 26:3, 27:8, 73:5, 73:14, 73:19, 110:5, 111:25 1,000 60:6 1,080 55:2 1,200 122:9 1,800 72:1, 116:23, 117:1 1.7 109:18 10 100:16 100 14:4, 67:9, 77:12, 108:19, 110:17, 122:17, 128:4, 128:9, 153:9 103 82:18 10:00 1:12 11 110:10 11/14/2010 34:20 110 81:19 111 1:8 1192 1:22 11:00 25:13 12 5:8, 6:6, 6:8, 6:21, 7:2, 7:8, 9:19, 109:13, 110:10 12/31/2009 34:23 120 74:22, 82:19, 129:13, 130:19 1203 8:4, 9:14, 9:14 1206 8:13, 8:17, 8:18, 8:23 1207 9:3 1208 9:12, 10:12 1209 9:12, 10:12 123.25 5:20 125 6:23, 6:23, 10:21 125.3 7:13 13 6:6, 92:12, 121:24 14 1:11, 94:22, 94:25, 102:14 140 71:9 14th 5:13 15 29:23, 83:17, 101:5, 101:5, 108:18, 110:11 150 130:19 1520 1:9 156 55:13, 157:12 157 99:21 15th 113:23 16 72:11, 72:15, 110:16, 118:3 168 77:14 17 110:16 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